MANUAL FOR BIOLOGISTS

ABOARD DOMESTIC GROUNDFISH VESSELS

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PREFACE

This manual has been prepared to assist you in your duties as an observer aboard domestic groundfish vessels operating in the eastern Bering Sea and Northeast Pacific. This manual plus training sessions and your perusal of reports filed by previous observers should adequately prepare you for your observer experience. It must be borne in mind, however, that conditions can and do change and that no set of instructions covering as broad an area as we have attempted to cover here can ever be complete. It is therefore the responsibility of the observer to objectively evaluate each unfamiliar situation on the vessel before deciding on a course of action. Study the manual carefully, refer to it often and consider ways in which it may be improved as a guide for future observers.

GROUNDFISH FISHERIES AND THE OBSERVER PROGRAM

The Magnuson Fishery Conservation and Management Act, implemented in 1977, established an Exclusive Economic Zone (EEZ) from 3 to 200 nautical miles offshore around the coast of the United States. The boundaries are measured from the same nautical baseline from which the territorial sea is measured. The Act gave the United States management authority over all the living resources within the zone and those anadromous species (originating within the U.S.) and creatures of the continental shelf which may occur outside 200 miles.

The Council System: The Act created eight Regional Fishery Management Councils. Off the west coast and Alaska is the jurisdiction of two of these councils. The North Pacific Fishery Management Council (NPFMC) has representatives from the states of Alaska, Washington, and Oregon to address Alaskan fisheries issues, and the Pacific Fisheries Management Council has representatives from the states of Washington, Oregon, Idaho and California for the fisheries off the west coast of the lower 48.

The eight regional Fishery Management Councils are designed to provide local and regional input into fisheries management. The council and its advisory groups are composed of people from the managed region who are experienced and knowledgeable in the fisheries and in the economics of the fishing industry. The council functions are to (1) Prepare and submit to the Secretary of Commerce fishery management plans for each fishery requiring conservation and management. In an ongoing process, these plans are reviewed and plan amendments are developed as necessary. (2) Review permit applications from foreign nations to fish within the EEZ. This function is less important now because the fisheries are fully Americanized. (3) Conduct public hearings to maximize public participation in the council process. The NPFMC meets about five times per year, once in Washington or Oregon and the rest in Anchorage. The Pacific Council meets in Portland, Oregon.

One of the goals of the Magnuson Act was to "Americanize" the fisheries of the U.S. This has been largely successful in both the Alaska and Pacific coast regions. Following the implementation of the Magnuson Act, the groundfish fishery changed from a foreign fishery in which virtually all groundfish were both caught and processed by foreign vessels, through an intermediate joint-venture phase in which U.S. vessels caught the fish and foreign vessels processed it, to the present status in which all the fish are both caught and processed by U.S. vessels and plants. Since 1991, the only foreign fishing in the EEZ of the N.E. Pacific and Bering Sea has been under research permits. Substantial foreign investment has been made in U.S. groundfish vessels and plants, however, especially by Japanese and Norwegians.

The Fisheries: The North Pacific Council has developed fishery management plans for the following fisheries off Alaska:

Southeast Alaska Troll Salmon
Bering Sea/Aleutian Islands King and Tanner Crab
Gulf of Alaska Groundfish
Bering Sea/Aleutian Islands Groundfish

samples. Observers are also responsible for sending daily and weekly catch reports and documenting and reporting possible violations of fishing regulations.

The data are used by NMFS scientists and managers, the NPFMC, state agencies, academic institutions, and the fishing industry. Uses of the data include: bycatch and quota management, estimation of bycatch rates of prohibited species, monitoring of individual vessel performance and compliance with bycatch rate standards, assessment of groundfish stocks, investigation of predator-prey relationships, determination of incidental takes of marine mammals and analyzing fishery-marine mammal interactions, appraisals of impacts on fisheries and stocks of proposed fishery management actions, assessment of impacts on fisheries and stocks of proposed actions by other federal or state agencies, and assisting fishery development activities.

Data obtained by the observers on catch size and species composition give fishery biologists some idea of the catch per unit effort of each species in a fishery, an important factor in determining the status of the stocks. Length frequencies and age structure collections of the target species obtained from the commercial catch are also vital in determining the condition of a fishery resource, and hence, of determining how much is available to be caught without causing fishery deterioration. Mathematical models used to assess certain fish populations (such as Shelikof Strait pollock, Bering Sea pollock, yellowfin sole, Greenland turbot, and others) are dependent upon a measure of the current age composition of the commercial catch. Without current data, decisions on allowable catches would be based on a higher degree of uncertainty and therefore would potentially be more conservative.

Because the management councils are dependent upon the data obtained by observers for a variety of important programs, the necessity for accuracy in data collections, determinations of species, and complete fulfillment of the sampling plan cannot be over stressed. Data forms must be carefully completed and checked. Sample forms in this manual serve as guidelines. (All observer data and reports are subject to certain restrictions of the Privacy Act and Trade Secrets Act. Any private use of them must be cleared by your contracting agency, who must receive permission from the National Marine Fisheries Service--please refer to the "Confidentiality" section that follows.)

This manual, along with the training sessions, should adequately prepare you for an observer trip. Because of the variations in fish handling by different ships, observers may be confronted with sampling problems not fully covered in the training sessions. We ask that you use your judgement to apply appropriate, specified sampling procedures and guidelines to your situation to insure unbiased samples. Most important, make an organized, detailed record of all the necessary variables that make up the data we ask you to obtain.

OBSERVER DUTIES AND PRIORITIES

Primarily, the observer's duties and priorities consist of collecting catch information, determining catch weight estimates, sampling for species composition and the incidence of king crab, herring, Tanner crab, halibut and salmon in the catch, collecting biological data on various species, and watching for incidental take of marine mammals. Priorities may change slightly according to cruise, so observers will be briefed on specific duties and priorities prior to deployment.

CONFIDENTIALITY OF OBSERVER DATA

Sometimes fishermen are concerned that the information observers collect might be obtained by anyone interested in finding out where a particular boat caught fish. If this is brought up, reassure them that the information collected is handled under federal rules governing the confidentiality of fisheries statistics. Also, observers are bound by standards of behavior indicated in the Code of Federal Regulations at 50 CFR §679.50(h) not to disclose collected data and observations made on board the vessel (see "Conduct" below, item 3). Certain data collected by observers are allowed to be released by NMFS to the public. Refer to 50 CFR §679.50(k). If asked by vessel personnel about another vessel you were on, explain that just as you can't talk about this vessel after you get off it, so you can't tell them about a previously observed vessel.

Observers must know that all data collected are the property of the U.S. government. No observer can retain or copy any data or reports following their return unless granted express permission of the National Marine Fisheries Service. This includes information used as part of a school project, thesis paper, articles for publication, or interview with news media. The main reason for this restriction is due to federal rules governing the confidentiality of fisheries statistics. NMFS also reserves the right to review for accuracy the draft for any article or publication concerning your observer experiences. Any questions concerning this or requests for permission should be directed to the Program Task Leader, Bill Karp.

VESSEL PERSONNEL'S ACCESS TO OBSERVER DATA

The skipper may ask to have access to your effort data (1US & 2US), composition data, length frequency data, and/or catch messages. It is Observer Program policy that upon request the skippers are given access to these data. Providing access to data maintained on other forms is not necessary. Due to the nature of the materials maintained in an observer logbook, we ask that you keep the contents confidentially. Among the reasons for keeping the logbook confidential are:

- it may contain confidential information that pertains to other vessels.
- it may contain information that would place you in an uncomfortable position.
- *if access is provided, you may find it difficult to later deny access if you record* something that is confidential
- it may cause difficulties for future observers who choose not to provide access.

Providing access to data can mean several things:

- allowing the skipper to view upon request.
- allow the skipper to photocopy
- allow the skipper to fax to company office.

The particular data forms which an individual skipper wants to see will vary from vessel to vessel. This will require working with the skipper to find a method for providing access to your data. The means chosen should be convenient for both you and the skipper. If your vessel is using observer sampling data to calculate vessel logbook entries, you may be asked to provide daily access to your data. You may find that you are being unreasonably pressured to complete your data for the vessel. If he wants the data *now* but you were just about to sample the next haul, tell him that you

CONFLICT OF INTEREST STANDARDS, 50 CFR §679.50(h)(2)

A NMFS observer:

1. must be employed by an independent contracting agent certified by NMFS to provide observer services to the industry;

2. May not have a direct financial interest, other than the provision of observer services, in a North Pacific fishery, including but not limited to, vessels or shoreside facilities involved in the catching or processing of the products of the fishery, concerns selling supplies or services to these vessels or shoreside facilities, or concerns purchasing raw or processed products from these vessels or shoreside facilities.

3. May not solicit or accept, directly or indirectly, any gratuity, gift, favor, entertainment, loan, or anything of monetary value from anyone who conducts activities that are regulated by NMFS, or who has interests that may be substantially affected by the performance or nonperformance of the observers' official duties.

4. May not serve as observers on any vessel or at any shoreside facility owned or operated by a person who previously employed the observers.

5. May not serve as observers during the 12 consecutive months immediately following the last day of the observers' employment in a North Pacific fishery.

6. May not solicit or accept employment as a crew member or an employee of a vessel or shoreside processor in a North Pacific fishery while under contract with an observer contractor.

(Provisions for remuneration of observers under this section do not constitute a conflict of interest under this paragraph.)

SPECIAL CAUTION ON DEPORTMENT

As a fishery observer:

1. You must abide by the standards of conduct developed by your hiring contractor.

2. When conflicts or sampling problems occur that affect your ability to get unbiased samples of the catch (presorting of fish for example), you can usually work it out by talking with the crewmen, factory foreman or deck boss. If this doesn't help, talk to the captain and ask him to help you but don't be demanding in your attitude. Present a case that shows you have thought about both sides. Listen and consider their objections. Negotiate compromises as long as they don't interfere with your ability to get good data. If talking fails, contact your contractor or the Observer Program office for arbitration.

endangered or protected species. A copy of a permit that does allow you to bring back sea lion or fur seal canine teeth for age analysis by the National Marine Mammal Laboratory is in the appendix of this manual. However, **no specimen materials may be taken from walrus.**

9. If your host vessel is boarded by the Coast Guard, do not attempt to interfere with their activities, or those of NMFS enforcement agents, in any way. You may let them know that you are aboard, then stand by. Do not allow boarding officers to draw you into a discussion of your observations in front of vessel personnel. Tactfully suggest that if they wish to ask you any questions you will be in your cabin (or go to another place that is private).

10. Once you are aboard your sampling ship, avoid making visits to other vessels. Sometimes other ships, tenders, or catcher boats may tie up to your vessel. Consider going aboard in these circumstances only if your transfer there and back can be made under extremely safe conditions and if your work performance is not affected. Do not make social visits to other vessels if they are not tied up to your vessel. Do not stay away from your vessel overnight. This is necessary to insure that planned levels of observer coverage are met.

11. Consider safety first in everything you do.

RESPONSIBILITIES OF VESSEL AND PLANT OPERATORS

Adapted from 50 CFR §679.50(f). An operator of a vessel required to carry one or more observers must:

1. Provide, at no cost to observers or the United States, accommodations and food on the vessel for the observer or observers that are equivalent to those provided for officers, engineers, foreman, deck bosses or other management level personnel of the vessel.

2. Maintain safe conditions on the vessel for the protection of observers including adherence to all U.S. Coast Guard and other applicable rules, regulations, or statutes pertaining to safe operation of the vessel.

3. Facilitate transmission of observer data by allowing observers to use the vessel's communication equipment and personnel, on request, for the entry, transmission, and receipt of work-related messages, at no cost to the observers or the United States. (Communications equipment requirements are specified, see "Groundfish Observer Program" part of Regulations, manual section 9.)

4. Allow observers access to, and the use of, the vessel's navigation equipment and personnel, on request, to determine the vessel's position.

5. Allow observers free and unobstructed access to the vessel's bridge, trawl or working decks, holding bins, processing areas, freezer spaces, weight scales, cargo holds, and any other space that may be used to hold, process, weigh, or store fish or fish products at any time.

4. Allow observers free and unobstructed access to the shoreside processor's holding bins, processing areas, freezer spaces, weight scales, warehouses and any other space that may be used to hold, process, weigh or store fish or fish products at any time.

5. Allow observers to inspect and copy the shoreside processor's daily cumulative production logbook, product transfer forms, and any other logbook or document required by regulations; printouts or tallies of scale weights; scale calibration records; bin sensor readouts; and production records.

6. Provide all other reasonable assistance to enable the observer to carry out his or her duties, including, but not limited to, assisting the observer in moving and weighing totes of fish, cooperating with product recovery tests, and providing a secure place to store baskets of sampling gear.

PROHIBITED ACTIONS, 50 CFR §679.7

It is unlawful for any person to:

1. Forcibly assault resist, oppose impede, intimidate, or interfere with an observer.

2. Interfere with or bias the sampling procedure employed by an observer, including physical, mechanical or the sorting or discarding of catch before sampling.

3. Tamper with, destroy, or discard an observer's collected samples, equipment, records, photographic film, papers, or personal effects without the express consent of the observer.

3. Prohibit or bar by command, impediment, threat, coercion, or by refusal of reasonable assistance, an observer from collecting samples, conducting product recovery rate determinations, making observations or otherwise performing the observer's duties.

4. Harass an observer by conduct that has sexual connotations, has the purpose or effect of interfering with the observer's work performance, or otherwise creates an intimidating, hostile, or offensive environment. In determining whether conduct constitutes harassment, the totality of the circumstances, including the nature of the conduct and the context in which it occurred, will be considered. The determination of the legality of a particular action will be made from the facts on a case-by-case basis.

5. Require, pressure, coerce, or threaten an observer to perform duties normally performed by crew members, including, but not limited to, cooking, washing dishes, standing watch, vessel maintenance, assisting with the setting or retrieval of gear, or any duties associated with the processing of fish, from sorting the catch to the storage of the finished product.

THE TRAINING PERIOD

The observer who requires certification training will spend three weeks in Seattle or Anchorage for orientation and training. Training will consist of familiarization with the groundfish fishery and its management and explanations of the sampling duties and procedures. Instruction in given on how to identify the families and species of fish, crabs, and marine mammals of the Bering Sea and Northeast Pacific, and on familiarization with groundfish fishing regulations. The following outline lists some activities covered during the training period. The outline is not necessarily complete and the items are not necessarily given in the order that they will be presented.

Domestic Observer Training Syllabus

Day 1 (Monday)

Orientation: Administrative information:
- course description, typical employment schedule, contractor guidelines, facilities information (grounds description, cafeteria, nurse, parking, storage of personal gear, facility access and hours, coffee/tea service, mail, telephones).

Introductions all around.
NMFS organizational structure
MFCMA and fisheries management - brief overview
Requirements for observer coverage.
Categories of vessels and gear types. Trawl, longline and pot gear terminology and definitions illustrated with models, diagrams and videos.
Slides and lecture on the history of N.E. Pacific groundfish fishing, commercially important fish (terms: target, bycatch, allocations and quotas), prohibited species, vessel types and their operations.
Slides illustrating observer sampling duties - emphasis on terminology, visual orientation and safety on board.
Fisheries regulations and the role of the observer.
Math test (in class).
Homework on fish identification terminology.

Day 2 (Tuesday)

Slide show on Alaskan ports, safety in boarding and disembarking vessels, life at sea, conduct and deportment, vessel disasters and hazards, and observer work.
Seasickness, medical advice, living accommodations, clothing and other items to bring.
Hardships and dangers lecture.
Groundfish Management:
- Management Councils structure and function, council advisory panel, science and statistical committees, NMFS statistical areas, ADF&G areas, and species report groups, ABC's, TAC's, allocation schemes, the relationship of the council with the NMFS regional office. The NMFS regional office's management and enforcement divisions.

Use of observer data for in-season quota management and for long term catch statistics and biological study.
Vessel location systems and plotting vessel positions
Homework on ADF&G area determination and position plotting.

Collecting biological information from Tanner crab, king crab, halibut and salmon in samples: weights and lengths, viability, sex, and salmon scale sampling.
Form 7US introduction.
Collecting data on tagged fish and crab, collection of salmon snouts.

Identification of Rockfish: lecture, slides and laboratory session.

Day 7 (Tuesday)
Weekly catch messages - Inseason quota management and time-critical nature of data, report week definition and how to assign data to a report week, grouping data into sets for catch message forms, page numbering, transcription and grouping of 3US data, calculation of percent retained by species group, prohibited species and marine mammal entries.
Extrapolating data on unknown species based on subsample data.
In-class work on catch message section of "Starry Flounder" exercise.

Length Frequency Sampling:
Workload, use of the data, slides of sampling method, data recording and entry on Form 7US.
Otolith and scale sampling:
Description of duties, use of the data and the stratified random sampling scheme, demonstration of sampling method, data entry on Form 9US.
Assignment of 7US and 9US homework on "Starry Flounder" exercise.
Slides of fish dissection and crab identification.
Laboratory session on measuring and dissection of round and flatfish. Viscera are examined to identify: gonads to sex, stomach, liver, intestine, heart, kidney, gall bladder.
Laboratory session on crab identification and measurement.

Day 8 (Wednesday)
Quiz on data format of Forms 7 and 9US, and collection of 7US and 9US homework.
Checking weekly catch messages - Handout
Catch Message Exercise "Stormy Seas" due Thursday.
Daily catch messages: why and when to do them, in-class practice, transmission of.
Explanation of observer routing code
Transmission of catch messages - Std. A COMS, fax, Standard C, telex, voice/private line, voice/radiotelephone, coding for voice transmissions, CMV form.
Sending catch message corrections.

Species Identification lecture, slides and laboratory session on cods and salmonids. Pre-test on identification.

Day 9 (Thursday)
Collection of Catch Message homework.
Final Data exercise, "Fish Killer" given out, due on Monday.
Random Sampling Table for observers on trawlers
Estimation of Official Total Catch on catcher/processor trawlers:
Use of deck estimates made by observers and by ship personnel, vessel logbook production section, weekly processor reports, product recovery ratios and calculation of round weights

Survival suit and life-raft water practice.

Day 14 (Thursday)
Review of Final Exercise ("Fish Killer").
Plant sampling, on-shore and aboard floating processors.
Gear issue: lecture on familiarization, responsibility for and care of equipment, then gear check-out and calibration of scales.
Receive special project instruction.
Last chance re-test on species i.d.

Day 15 (Friday)
Bird identification and observer duties in regards to birds - guest lecture
The Debriefing Process: information on return procedures, the data review process and final reports.
Final Exam.
Preparation for first day aboard.
Travel rules and parting information from contractors.
Review of previous cruise reports and reading files.

If a complete grasp of the duties is not demonstrated, the observer will not be certified. An observer may be de-certified or dismissed by their contractor if they violate rules of conduct, rules of data confidentiality, or lack the appropriate human relation skills necessary for the job.

Vessel and observer schedule arrangements are a difficult task. Though you may express a preference for a vessel type, an observer must be willing and able to accept any assignment. The observer-in-training should be prepared for changes in ship assignments and departure times. Some observers wait for their first vessel assignment longer than was originally planned, so be prepared for this eventuality, and be patient. Similarly, dates of return may also be affected by vessel schedules, so notify your contractor, before leaving, if you have any pressing dates soon after your expected return (such as the beginning of a school quarter).

After completing their trip at sea, observers report to their contractor to make an appointment for debriefing. Observers must then work with their contractor and the Program staff until their data forms and trip reports have been properly completed and have been accepted by NMFS. The debriefing process normally takes one or two weeks.

OBSERVER CLOTHING AND EQUIPMENT

NMFS will provide observers with safety apparel and sampling equipment. The observer is responsible for the transport and return of the sampling gear issued. If the observer needs different equipment or forms or replacements for equipment during their deployment, the field offices in Dutch or Kodiak can usually re-supply them. The observer must make an effort not to lose and to prevent theft of the gear issued to them. If durable equipment issued (see asterisks on gear list

Recommended and Required Items

Felt/wool boot insoles for boots (not felt liners) - 2 pair
Needle and thread, safety pins, and duct tape for repairs
Camera and film
Watch and travel alarm
Medication for seasickness - required
Athlete's foot cream
Vitamins
Hand cream
Paperback books
Small cassette player and tapes
Water bottle (1 qt.) - to keep drinking water in your cabin

SPECIAL PROJECT EQUIPMENT

STOMACH SAMPLING: Buckets, bags, etc. are issued by the stomach lab and these items should be returned to that lab when debriefing.

OTOLITH/SCALE COLLECTION:

___ otolith vials, 200, 100 per box
___ vial block, 1
___ plastic otolith form
___ cod knife
___ forceps (1 pr.)

FISH COLLECTION:

___ various plastic bags, manila and waterproof tags

OPTIONAL EQUIPMENT

CATCHER BOAT OBSERVERS:

* ___ N/U mustang suit
* ___ N/U knee pads
___ leg wrap bands

LONGLINE OBSERVERS:

* ___ N/U mustang suit
___ thumbcounters, 3 more
___ protective eyewear

WOC COASTAL HAKE OBSERVERS:

* ___ Miller & Lea, ID book

OPTIONAL (ALL OBSERVERS):

___ twine or light cord
___ AC adaptor for calculator
___ cellophane tape
___ pencil sharpener
___ 1" looseleaf rings
___ Zak roe knife for sexing fish
* ___ Pacific Fishes of Canada, (an ID guide by Hart)
___ whetstone

Personal Gear Storage:

Please read and acknowledge with your signature: I understand that storage of flammable, hazardous, or illegal chemicals and substances is not permitted. I understand also that the NMFS Observer Program does not guarantee the safety or security of the items I am leaving in storage.

Signed_____ Date _____

Number and description of items in storage, for example: 1 box and 1 suitcase. (You do not need to list contents.)

_____

Preparation and Care of Sampling Equipment

The sampling gear provided for you may not be new, but should be in good working order. Most gear is expected to be used for several observer contracts. Therefore, we depend on you to give proper care and maintenance to the equipment. All gear given to you will be examined upon return, to see that it is in good condition before it is checked in. Facilities are available for cleaning gear NMFS offices if this could not be done aboard the ship. All returned gear must be clean and free of scales. *All* metal parts must be clean, free of rust, and oiled. Here are a few tips for shipboard maintenance that should make your job easier:

1. Protect your gear from loss overboard and from theft. Do not leave gear items such as baskets and scales on the weather deck unless there is no alternative and they are well secured. Stow all sampling gear when you are finished and inform the skipper and crew not to borrow or use your equipment without your permission.

2. Keep all paper products and small, loose equipment (pencils, pens, thumb tacks, scissors, counters, etc.) in plastic bags throughout your trip.

3. Try to keep as dry as possible: calculator, stopwatch, and thumb counters. Wipe the steel tape measure down with an oiled cloth after use. Books should always be protected from water and slime.

4. *Most important:* Every day before use, the weighing scales must be checked over. Keep them cleaned and oiled. Adjusting screws must be kept coated with grease. The scales have steel springs inside which will rust. Oil must be squirted up inside the scales.

5. Steel 2m tape measure, and thumb counters must also be rinsed and oiled each day when used. On the thumb counters, the plastic viewing window may need to be removed to clean and oil the inside. (Be careful to keep oil away from plastic forms, since a pencil won't mark on an oily surface).

Remember--others must use this gear after you, and proper care of equipment will help make all our work easier.

Do not give away any gear or books! Equipment items marked on the list with an asterisk will have to be replaced if they are not returned regardless of the reason for loss. Replacement calculators for instance cost about $30.00 and must be of the type specified. Your contractor may make you personally responsible for replacement.

Calibrate your scales during gear check out. Then prepare a known weight by selecting items that may be easily assembled later. (i.e. a basket, wheels, and books) List the items weighed and their total weight. This known weight may then be used later to check your scale adjustment or to check the accuracy of shipboard scales.

Expenses Incurred While Traveling

The contractor should inform the observer before departure, on the procedure for accounting for money spent while traveling from Seattle to the vessel and back again. While sometimes it may not be necessary, it is a good idea to save all receipts for transportation, hotels, meals, and other legitimate expenses. Be cautious in spending your travel advance. Costs are high in Alaska and observers are frequently delayed, both in getting on their ships and while in port between assignments. Some hotels and restaurants in Dutch Harbor do not accept credit cards but you can probably use them as identification for a personal check. If you have to pay cash for any excess baggage charges on your return flights, do not forget to allow enough money (and get a receipt). Remember, excess baggage charges from Dutch Harbor to Seattle can typically run from $200 - $250. Retain any unused airline tickets and turn them in to your contractor upon your return.

Transport to Port

Normally, airplane flights are arranged so that an observer arrives at the embarkation port at least one day in advance. This is often necessary since the weather is notoriously bad in certain parts of Alaska, and flights are often postponed. Delays caused by weather may be unavoidable, but it is important that the observer not be the cause of delays by missing the flights, or having his equipment miss the plane. If you **do** miss your flight, notify your contractor immediately.

Upon arrival at the embarkation port, follow your contractor's logistics instructions and stay in contact. Let your contractor or agent know of your whereabouts so that they can contact you if there is a last-minute change of plans. The observer program has offices in Dutch Harbor and Kodiak where you can get help if there is a problem and your contractor may have a permanent contact in port to help with logistics.

ARRIVAL ABOARD THE SHIP

Vessel assignments are arranged by your contractor with the vessel company. Logistic arrangements are also made by your contractor. Observers must be aware that fishing schedules are often changed by weather, mishap, break down or fishing success and these events often change observer schedules. If you find out that your ship's schedule is changing unexpectedly, call or send a message to your contractor explaining the matter. Do not make changes in your schedule yourself. Observer coverage of vessels is a large logistical "net." Movement in one part affects the whole and your contractor has logistical perspective that you cannot see.

Living Conditions Aboard Vessels

Conditions vary widely depending on the ship type and size, company and skipper's policies, and the fishing success. "Conditions" include cleanliness and upkeep, safety, comfort of quarters, quality of food, general attitude, and good personnel management. Of these, only accommodation equivalent to management level personnel and compliance to safety requirements and regulations is addressed by regulations for observers. Observers must be flexible as only a few generalities on what to expect can be made. Personal quarters are usually cramped. The most personal luggage one

In case of an emergency such as an injury or illness requiring hospitalization, the vessel master will initiate a call to the Coast Guard and they will attempt a rescue and/or advise you on how to proceed. If it is you or another observer is involved, have the Coast Guard also notify an Observer Program office and keep us advised.

If you become ill, such as coming down with a severe cold or flu that inhibits your work, ***you must inform your contractor and NMFS*** of your situation just as you would if you were expected to show up at an office each day. If your illness gets progressively worse or continues to affect your performance over more than three days, your assignment may need to be changed (when possible).

Seasickness often hampers observers at the beginning of a cruise, but give it time - most of the effects of seasickness disappear after a few days. Seasickness occurs because, "information about the vertical line as it is received by the eyes is forever clashing with the information assimilated by our sense of position and sense of balance. When it comes to a conflict of sensations like this, the visual system almost always dominates. ...This perceptual conflict is one of the causes of seasickness. With time, however, one learns to perceive the 'perpendicular' which arises from the movements of the boat and the direction of gravity. Thus the body maintains its balance when upright and learns to ignore the conflicting visual data afforded by the interior of the boat and the horizon outside the window. Movements with low frequency and greater amplitude are more likely to make us ill than movements with a high frequency and smaller amplitude... Head movements in addition to the external motion stimuli serve to precipitate discomfort... There are additional factors besides movement which can precipitate the syndrome."[1] Indigestible stomach contents, unpleasant fumes or cooking smells, and anticipatory fear will trigger seasickness. The symptoms are nausea, headache, drowsiness, and depression. This is **normal**, it's just difficult to live with. Remember, no one ever dies of seasickness, but what can be a danger is weakness, so you must make yourself drink water or some non-acidic juice and try to eat some mild food (soda crackers are often recommended) to keep up your strength.

non prescription

Take seasickness medication along even if you don't plan on using it. Scopolamine works very well for many people. Scopolamine is currently sold under two trade names, Transderm Scop (the "ear patches"), available only with a prescription, and Triptone, an oral, non-prescription form. Some people cannot tolerate scopolamine's side effects. Dramamine (the trade name of Meclizine), Bonine and Cyclizine (trade name is Marezine) are the usual over-the-counter drugs which will inhibit vomiting. The U.S. Coast Guard formerly used Meclizine with moderate success. The Coast Guard's research "found that a combination of two drugs, promethazine hydrochloride (an antihistamine, trade name Phenergan), and Ephedrine sulfate (a decongestant), was by far the most effective treatment available. Similar tests on Navy and Air Force personnel corroborated the Coast Guard's results. The recommended dosage is 25 mg of each drug one to two hours prior to motion stress, and at six-hour intervals as needed thereafter."[2] Promethazine hydrochloride is a prescription drug, may cause drowsiness, cannot be used by pregnant women (none of the drugs mentioned here

Antivert trade name

is Meclizine

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[1]Michael Stadler PhD., Psychology of Sailing (Camden, Maine: International Marine Publishing Co., 1987), p. 57 - 74.

[2]Wayne Haack, Motion Sickness (Sea Kayaker magazine, Summer 1986).

Safety Aboard Vessels

Fishing vessels have many potentially dangerous areas. Extreme care should be taken to avoid injury. The following points must be adhered to while on the vessel:

1. The first day aboard, find and read the station bill which is a placard with instructions on what to do in case of an emergency. Note where the lifeboats, life preservers, and other safety devices are kept. Memorize the exit route from your cabin, the factory, the galley, and other locations where you spend a fair amount of time. Keep your survival suit where you can get at it in a hurry.

2. Observers are required to wear a hard hat, life vest or other flotation and boots when on the weather deck for any reason.

3. Be cautious whenever wading through fish since fish spines (especially rockfish) can penetrate rubber boots and cause painful wounds to the feet.

4. Apparel with loose strings or tabs should be avoided, as they might become caught in the equipment or belts. Long hair should be tied back and jewelry such as rings should be avoided as they can also get caught in machinery.

5. Don't run aboard ships, particularly up stairwells. Always hold handrails in stairwells and ladders. Slipping, tripping, and falling are the most common sources of observer injury. These accidents often happen when an observer is in a hurry. Specifically, watch out for slick spots where the deck is wet and oily or frozen, step carefully over the half-foot combing rising from the bottom of metal latch doors and passageways, and look out for low overheads in vessel stairwells and watertight doors.

6. The observer should not stay outside on the aft deck during rough seas. An observer has been swept forward over a trawler's winches by waves sweeping up the stern ramp. When the observer is outside, he/she should remain in full view of a second party at all times.

7. Trawler's cables that break under strain have maimed and killed sailors. Whenever a cable is subjected to tension, stand in a place where a backlash would not hit you. If your sampling station is on deck, don't work while a trawl is being set or retrieved; interrupt your work to go to a safe place during the process. Explain to the deck boss your need to watch the haul-back for marine mammal interaction and, when the winches have stopped fully, to go out on deck for codend measurements and ask where would be a safe place to stand. When nets are being hoisted off the deck, stand well clear. Heavy nets have fallen near observers when the suspending cables parted.

8. When working near the exit chutes in the factory floor, where bycatch and factory offal wash out, the observer should be extremely cautious not to slip and fall in the wash of bilge water.

9. Observers are cautioned not to pry loose any fish caught in the chinks of slat or rubber conveyors, since this may result in getting a finger or hand mangled in the machinery.

been started and warmed up, and that there are oars stowed as a backup. As general guidelines, do not transfer at dusk, in darkness, or in any other low visibility conditions. Transfers involving a small boat or raft should never be carried out at night. Observers should not transfer when the sea state is two meters or more. An ADF&G crab observer and two crewmen died when their small transport skiff overturned in rough water. Points to remember when transferring:

1. Observers will wear life jackets at all times on skiffs or other small-sized vessels and while transferring.

2. Observers will not encumber themselves with baggage when transferring vessels. Balance is important. Both hands must be free during transfers.

3. All baggage will be secured with lines and transferred via rope lines or cargo nets. Observer baskets have been lost overboard because they were thrown between ships without lines attached.

4. Given a choice between using a Jacob's rope ladder or a gangway (a stairway ramp) to board a ship, in most cases use the Jacob's ladder since the use of a rigid gangway in rough seas can be extremely hazardous to the observer and to the transfer boat.

5. If a cargo net, transfer basket, or cage is used to transfer observer or baggage, make sure that a line is attached to the conveyance from both vessels for greater control and to reduce swinging. The observer should maintain a crouched (knees bent) position as opposed to sitting or standing with straightened legs, to avoid back injury. Be sure to wear your hard hat in addition to your lifevest when using this mode of transfer. Keep your arms, particularly elbows and fingers, inside the conveyance when transferring

First Days On Board

As quickly as possible, the observer should adapt to the new surroundings, meet people, and make preparations for work. If there are hours before your vessel leaves the dock, or at least on the way to the fishing grounds, you should have a meeting with the captain. Cooperation from the captain, mates and crew is essential in many instances in order to obtain the unbiased samples the observer needs for his work. It is important at this meeting to set the tone for a friendly but business-like working relationship. If the captain is receptive, take this opportunity to mention the following points:

1. Tell the captain that you want to routinely see the ship's fishing logs.

2. On catcher/processor vessels, inquire as to how to send the weekly catch messages.

3. Ask to be informed, in advance, of changes in the fishing schedule so that you may adjust your schedule accordingly.

On board a catcher-only trawler, the operation is much simpler and an observer has less opportunity to get oriented as only a few tows are made each trip. Do your best to find or rig a place to weigh fish. Ask where the last observer weighed fish. Ask what they'll be fishing for and get an idea how diverse the catch will be. If they sort on deck, ask which fish go where. Let the skipper and crew know you'll need to take a few quick measurements of the net. Get any deck measurements you can before fishing begins.

As retrieval begins, get yourself and your sampling tools ready. When fish are dumped, watch what's happening all around you as you go to grab a couple baskets of catch. Learn quickly where you can be and where not to be! Watch how they handle the catch. Then you can get some i.d. and sexing work done while figuring out and practicing your sampling methodology for the next tow.

OBSERVER OBJECTIVES AND GENERAL INSTRUCTIONS

The main work objectives of observers are to record fishing effort information from the ship log, record any incidental take of marine mammals, make independent estimates of catch weight, determine the catch composition, estimate percent retention of catch species, collect biological data on prohibited, target, and other species and monitor for compliance to fishery regulations. Secondary objectives include marine mammal and bird observations, and working on special study projects which may be assigned.

Since ship design and procedures vary from ship to ship, in many fisheries it will be the responsibility of the observer to select the best sampling methods to obtain the needed data. In the following sections, the methods of sampling will be outlined. To use any of the prescribed sampling methods, the observer will be relied upon to devise and apply good, statistically sound, fish collection techniques.

When conducting biological sampling, the most important thing to remember is to take random, unbiased samples such that your data will be representative, not of any particular catch but of the vessel's catches over time. We stress the taking of random samples in all data collections. Accuracy is important in all aspects of the work, including: the physical sampling, recording the data on plastic sheets, transposing the data on the plastic sheets to the final copy, and correctly summing and transposing data for the weekly catch reports. The need for random, unbiased sampling and accuracy cannot be over stressed.

of the entire catch. It may or may not be appropriate to measure and examine the halibut collected in a basket sample. Viability and lengths of halibut may be taken from randomly selected fish (up to 20) from outside your composition sample as long as it's from a sampled haul or set.

Every Day:

(7) Take sexed length measurements of the target species (Form 7US). If you are assigned to collect otoliths from a species other than the target, measure lengths of that species and then of the target species as possible. (The otolith collection must be a subset of a length frequency collection.) Measure about 150 randomly collected fish per day of the one (or possibly two) sample species. If it's not possible to measure that many, do as much as you can but do not drop this task altogether unless instructed to do so.

(8) Special study projects may be assigned. Examples of some projects are: collecting otoliths or scales for ageing, stomach content samples, catch density sampling, maturity sampling of a species, or studies on sample methods and variance. Some projects may be placed at a higher priority in the observer's duties. Conduct work according to directions given. Data for some of these projects are recorded on form 9US.

(9) Observer logbook entries -- Record all catch estimate calculations. Sampling calculations not recorded on the 3US worksheet must be recorded here. Maintain a record of daily notes. Make a record of sampled hauls and communications.

Weekly (or Daily if requested):

(4) Send a summary of fishing effort, catch composition information, and halibut viability sampling to the Observer Program office in Seattle (1US or 2US, CMA, CMB, Halibut Inseason Viability Form). If daily messages are requested, the content will be specified.

Upon Occurrence:

(2) Record species, numbers, condition, and circumstances of any incidental mammal catch. Collect specimens (canine teeth) according to instructions (Form 10US).

(5) Observe the compliance or lack of compliance to specified U.S. fishing regulations and document suspected violations to those regulations when observed (Observer logbook).

(10) Record sightings of marine mammals (Form 11US) and birds (Observer logbook).

Per Vessel:

Also in the observer logbook -- make sampling area diagrams.

GENERAL INSTRUCTIONS FOR DATA FORMS

In gathering the necessary data, observers occasionally have to be inventive to overcome sampling problems, but once the data are ready to be transferred from the plastic on-deck sampling forms to the paper keypunch forms, all creativity must cease. Data from hundreds of cruises a year have to be processed, analyzed, and summarized, and there is no way to footnote data from a particular cruise after they are fed into the computer. Thus, certain data columns always have to be filled in and they have to be filled in a certain way, with leading zeros in some places but not others, zeros filled in behind printed decimal points, and decimal points entered by observers in other cases. Refer to the specific directions and examples for each form. If you do need to make a note to alert us to make a decision on some of the data, place the comment on a portion of the form which is not keypunched.

The forms should be neat - all the numbers should be precisely printed in conventional Arabic numbers so that they are readily legible. Sloppy forms multiply the number of keypunch mistakes and sometimes require guesswork to interpret. Use a sharpened *pencil*, not a pen, to fill out all forms so that erasures can be neat if changes have to be made. Brackets and arrows (refer to example forms) can be used to indicate that the numbers in a column are to be repeated. Ditto marks *cannot* be used to repeat a number in key punch columns. Enter numbers to the right margin (right justification) in wide data fields of the forms.

Much of forms 1US, and 2US should be filled out from the ship's fishing logs. Observers should take care to record the correct information and avoid making copying errors. All sampling data require the vessel position data on these forms, so if these are missing, other data cannot be used.

Cruise Numbers And Vessel Codes

A "cruise" number is assigned for each observer contract and the observer program also assigns a vessel code to each boat. Therefore, the cruise number and vessel code combination identifies each observer's work assignments individually. The vessel code is for our program use only and does not have anything in common with the ADF&G boat number, the permit number or the processor code. Each of these identifiers has a specific use and observers must be careful to record the specific identifier asked for! Cruise numbers and vessel codes will be given to you at the end of the three week training or during pre-trip briefings. **Maintain separate sets of each form type for each boat (and year)** and mark your name and the ship's name on the first page of each type of form for each boat or plant.

Sampling Over The Change To A New Year

There are two instances when you would have more than one cruise number for a trip. One is if you are sampling in December and continue to work on that assignment into the new year, you will be assigned a new cruise number for the new year's data. Start a new page for each set of forms and start their numbering again from page one as of January 1st (0000 hours, between December 31 and January 1). For the weekly report, the week ending date of the last week of December is December 31st. The first day of the first week of the new year is January 1st.

"Computations carried out on an automatic desk computer are so simple that it is very possible that the final result of a sequence of calculations will appear more precise than it really is. Rules concerning numbers of significant digits resulting from the application of the arithmetic operations are available but somewhat impractical. In most statistical work, it is best to carry more figures, say not less than two extra, into the final computations than seem necessary and then to round the result to a meaningful number of digits, relative to the accuracy of the original measurements."[3]

For density calculations, your measurements may be to .1 or .01 meter and weights from the fifty kilogram scale may be read to .2 kilogram. Also, on this program's data forms, nearly all weight data are entered to two decimal places, so it makes sense to keep all intermediate calculations, such as average weights of fish, out to at least four decimal places (or preferably full field all the way through) and only round to a meaningful (or required) number of decimals for the final data entry.

Observer Program Rounding Rule:

≥ 5 is rounded up, ⟨ 5 is rounded down.

Example: rounded to two decimal places: .52499 = .52

(When rounding, look only at the first digit to the right of the place you are rounding off at. In the example above, since we are rounding off at the hundredth's, we would only look at the "4" and thus leave the "2" as it is. We would not look at the "9" and change the "4" to a "5" and continue to round the "2" to a "3" thus getting an answer of ".53".)

Reminder: to increase a number by a percent, do not multiply the number by 100 plus the percent. Instead, divide the number by 100% minus the percent. Example:

120 is 70% of what number? We need to increase 120 by 30% but do not multiply 120 x 1.30.

120 ÷ .70 = 171.43 correct

120 x 1.30 = 156 incorrect!

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[3]Robert G. D. Steel and James H. Torrie, Principles and Procedures of Statistics With Special Reference to the Biological Sciences (New York: McGraw-Hill Co., 1960), p.30.

HAUL SUMMARY FORM 2US FOR U.S. TRAWLERS

OBJECTIVE:

Ascertain and record the best information available on fishing effort and catch. Catch per unit of effort, the type of gear used, where in location and depth that gear is deployed, and who's doing the fishing are the basic pieces of information fishery managers need to monitor and control the harvest of the public resource. "Fisheries" management is not management of fish as much as management of the fishermen and our use of the resource. Haul summary information is the basis of all the rest of the data gathered aboard a vessel. If this form is not complete and correct, the rest of the data collected cannot be used. The collection of haul summary information is the top priority for an observer. All subsequent sampling data for a vessel are tied to the Haul Summary Form with the date and haul numbers. Be certain your haul and date correlations are correct on this and all other forms.

Topics:

FORM 2US--HAUL FORM INSTRUCTIONS

This form summarizes fishing effort and total catch by haul for catcher-only trawlers, catcher/processor trawlers and motherships. *Observers on floating processors which pump the holds of catcher boats and observers at shoreside plants do not fill out 2US, but fill out the Form A - Plant Delivery Form instead.* (Refer to the Plant Sampling section of this manual.) Obtain the data for 2US forms from the ship's logs, from vessel personnel, and from direct observation. Vessel logbook information may need to be adjusted on your 2US if it is not correct or not recorded according to your instructions below. Check carefully to see that no errors are made in copying the data to the forms and that the data are reasonable. Points to note in completing the 2US are:

1. **An entry must be made for every day you are assigned to the vessel.** Start your entries with the day you put your gear aboard and end them on the day you disembark with all your gear. Skip a line between each day's entries. Each delivery or day in port must be noted on a line of 2US. Observers on catcher boats should use one line to note a delivery even if there are also hauls made on that day. Make certain that you record all the hauls. **Do not** make the mistake of recording only the sampled hauls.

2. **Heading:** The identifying cruise number and vessel code will be given to you prior to deployment, in training or briefing. Each vessel you are on will have a different vessel code. Keep data for each vessel separate. For "Year" enter only the last two digits, such as "97."

3. For each fax transmission of 2US data forms to NMFS, you will need to enter an ORC (Observer Routing Code) number in the box above the date and haul number columns (one per transmission). The ORC is a three-digit security code entry which will be explained to you in training.

4. Place check marks in the first column to indicate which hauls you sampled for species composition.

5. A given haul number should be used only once - no duplicates. The haul numbers should usually be in numerical sequence. Observers on pair trawlers and mixed gear types may need to skip haul numbers and if this is done, a general explanation should be written on the head of the form and a specific explanation on a separate line at each occurrence. Haul numbers must be in ascending order.

   All hauls must be recorded unless there was a gear malfunction resulting in a zero catch. If a zero catch is not due to a gear malfunction then the haul must be recorded. A haul number must be assigned to every haul. Haul number "0" is only used for a non-fishing day where the vessel was at sea at noon. The haul number field is left blank on days spent at moorage.

6. Under "Monitored for marine mammals" enter a "Y" or "N" to indicate which hauls were randomly selected and monitored.

3 - Catcher-only vessel. This vessel caught its own fish and retained it for delivery to a processor (shore-based or "floater"). On board, the catch is kept on ice or in RSW (refrigerated seawater) tanks, not frozen.

4 - A mothership or catcher/processor is receiving this tow as **sorted** (or *potentially* sorted catch from a catcher vessel. (Catch was transferred by brailer or by pumping; any method other than by codend transfer.) Sorted catches should not be sampled by the observer.)

5 - The catch from this tow was sold over-the-side to other fishing vessels who will utilize the fish for bait.

If a catcher/processor (c/p) vessel also acts as a mothership, fill out only one set of 2US forms as shown in the bottom half of the example 2US form above. The two types of catches are indicated by the "vessel type" column entry. In this case, make entries on *separate sets of catch message forms* according to vessel type but record only one set of 2US forms.

10. For the location code, enter R if the location is a retrieval position, and N for noon position entries on days at sea when no tows were completed. (See item 11. below.) Observers on motherships should enter "R" and retrieval positions if at all possible. If retrieval positions are not available from the catcher boats, enter "D" and the position of the mothership at the time of delivery. The location entered **must** correspond to the location code type.

[Note for Mothership observers: Deliveries of catch will often not be made in the order in which the nets were retrieved on the various catcher boats. The retrieval time determines the date of the catch just as with catcher/processor vessels, but on the Form 2US for a mothership, the fishing times will not be sequential. Recording the catches in order of delivery or retrieval time is all right as long as each catch is attributed to the correct date according to retrieval time and the dates are sequential. The only lines of data on 2US which may require reordering are those for deliveries around 0000 hours.]

11. **Noon positions:** Do not enter noon positions for days when the vessel was in port (or bay or harbor) at noon, waiting to deliver, picking up parts, or whatever. **Enter a noon position only if there were no hauls completed on a day *when the vessel was at sea at noon*.** This is usually due to bad weather, mechanical breakdowns, or traveling to or from port. Then enter "0" in the haul number column, a location code "N," and the noon position according to Alaska Local Time (ALT). On the remainder of the line, comment on the reason there was no fishing. **All days aboard must be accounted for with fishing information, a noon position, or a note for days in port (see item 1).**

12. For mothership observers, information on gear type and performance, retrieval location, fishing times and/or fishing duration, fishing and bottom depth, and average towing speed has to be obtained from the catcher boat skipper. This may be accomplished by talking to the skipper on the VHF radio after the delivery is complete, that is, when they are no longer busy

20. Average fishing depth and average bottom depth can be recorded in either fathoms (more likely) or meters, depending on their preference. Both depths must be recorded in the same unit of measure. Try to obtain both depths as that will indicate whether the net was fishing on or off the bottom. Record depths to the nearest whole number; no decimal values please. In the next column to the right, be sure to label the depth information as fathoms or meters.

21. Record the average trawl speed to tenths of a knot. Trawl speed is not recorded in the NMFS vessel logs so you will have to ask the bridge personnel for this information. Ask whether they ever change their average speed of towing and under what conditions. Be mindful that changes in gear, area, depth or target may require a change in average towing speed.

22. Official total catch (OTC): according to the observer's judgement, this is the best estimate of total catch weight (round weight, all species included) for each haul. All subsequent uses of haul weight by the observer and in the observer program data base will use these figures. Thus, it is the "Official" Total catch. There must be an entry of OTC for every haul recorded on the 2US form. The entry must be made to two decimal places.

    Occasionally, large items like a crab pot, large amounts of mud, a boulder, a large shark or a dead walrus are caught. If the large item is an organism, include it as part of the catch weight and it must be recorded in the species composition data as well (refer to 3US instructions). If it's not an organism, it's weight should be included either in **both** the OTC and the composition data **or in neither** place.

23. Observers' estimate: on trawlers this is a volumetric estimate of total catch made from the volume of fish in a codend or fish bin (or tank) and applying a density factor. All dimensions are made from independently derived or verified information. Make independent estimates of as many of the catches as possible. Instructions and information on making estimates of catch weight follow. Record the weight estimate to two decimal places. Enter "B" or "C" in the next column to indicate whether this estimate is taken from a bin or codend volume.

24. Record the density value used in calculating the observer's estimate. There should at least be an entry when there is an observer estimate. Record the density to two decimal places. Record all density sampling data and calculations in your observer logbook.

25. The "Vessel's Total Catch Estimate" is the "Estimated Round Weight of Catch" recorded by the skipper in the vessel's NMFS log. Record that figure here in metric tons. Do not adjust it. There should be an entry for every haul unless one was not made. You do not need to also record this in your logbook. Just record the figure on the 2US.

26. The column for "Catcher Boat's ADF&G #" and the box for "List of Catcher Boats" at the top of the form are *for mothership observers only*. If you're on a catcher/processor which doesn't take outside deliveries or if you're on a catcher-only vessel, leave these areas blank.

    If you're on a mothership, the name of each catcher boat which delivers *only needs to be listed once* in the box at the top of the first page (or second page if there are six or more

VESSEL FISHING AND CUMULATIVE PRODUCTION LOGS

A skipper may keep several types of records or logs. He (she?) may keep fuel and fishing logs for himself or his company and there are fishing and marine mammal logs required by NMFS for fishery management. The Alaska Department of Fish and Game (ADF&G) requires information on "fish tickets" for their landing records. Your job is to obtain the best information on the fishing catch and effort from these ships' logs, from vessel personnel, and by direct observation and accurately record it on your Haul Form 2US. **All of the tows made while you are aboard must be recorded on your haul form whether you sampled them or not.**

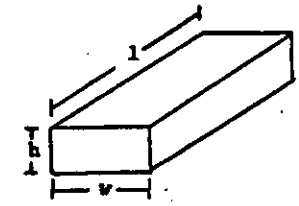
The captain may wish to use the observer's sampling data as a basis for logbook entries, perhaps for total catch "deck" estimates but more likely for estimates of amounts of discarded species. Observers may provide the vessel's officers with copies of their "raw" sampling data obtained from that vessel, but observers may not make extrapolations from any of their sample data for entry in vessel logs or use by vessel or company personnel. Should the vessel's log or a statistic be called into question, the observer could be held accountable for release of incorrect information. An observer must never make any entry in the vessel's logbook nor should they sign the log or any statement regarding the catch or operation of the vessel. Refer all requests of this nature to the Observer Program's Seattle office, or the NMFS Regional Office in Juneau, AK.

OBSERVER ESTIMATES OF TOTAL CATCH

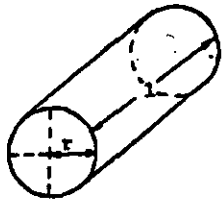
The observer estimate must be an ***independent, non-biased and substantiated*** *estimate of* catch weight. Each component of the estimate must be derived by the observer. If the observer uses preexisting height or length marks or a vessel's weight scale, the observer must check them for accuracy. There are many variables in estimation of total catch weights. Even when the catch is weighed, it may already have been sorted or the scale may the tared for "water weight" or other factors. When analyzing total catch, your estimates will be used as a criterion. Your estimates of total catch are an important part of the reason you are there, so you should do your best to get good data. Do not, for instance, make any total weight estimates simply "by eye." Document your measurements and calculations in your logbook and record your "Observer Total Catch Estimate" on the 2US form whether you believe it to be a good estimate of total catch or not. When your observer estimates are used as the OTC, record them in both fields on the Form 2US.

Objectives: Observers should make an independent estimate of the total catch weight of as many tows as possible. Only observers on trawlers which pump the fish out of the net as it lies in the water are not expected to make observer estimates. Usually an observer's estimate is made of the tows sampled for species composition and you should make an effort to estimate the weight of some non-sampled tows as well. Each component of the estimate is made or verified by the observer and all dimensions and calculations are documented in the observer logbook. Observer estimates are recorded on Form 2US.

Plan the most efficient method for taking your measurements. The deck crew will want to empty the net as quickly as possible. They may be reluctant to allow an observer time to make actual measurements. Prepare for this by talking to the skipper and the deck boss after you have looked the situation over and made your plan. They may have some good suggestions from working with previous observers that you should consider. Once you have coordinated your plan with the deck crew and are waiting for your first net to estimate, be ready to step on deck as soon as the winch cables are relaxed. Wear your hard hat! Show that you are mindful of their concerns for your safety. If you need assistance, having one of the deck crew help you regularly will help everyone. The two of you will soon learn to work quickly as a team; measuring will be easier for you and you will finish faster so they can get on with their work. On a big net of fifty tons or more, single handed measurements might take eight or more minutes. With help you might be able to shave several minutes off that time. If the deck crew are reluctant to give you a hand, explain your idea to the skipper and ask for his cooperation. If cooperation is not forthcoming, estimate the differences from pre-measured distances by eye and use that to calculate total volume. You must still be on the deck however, to do this with sufficient accuracy.

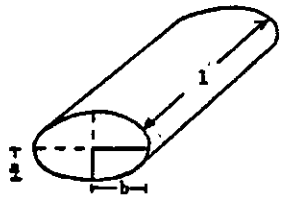


Rectangular solid
Volume = height x width x length
V = hwl

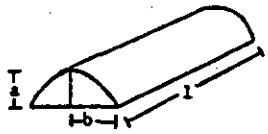


Cylinder
Volume = π x radius^2 x length
V = $\pi r^2 l$

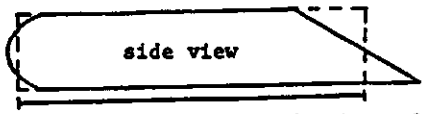
(π=3.1416)

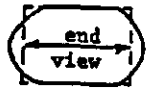


Ellipsoidal solid
Volume = π x short radius x long radius x length
V = π abl



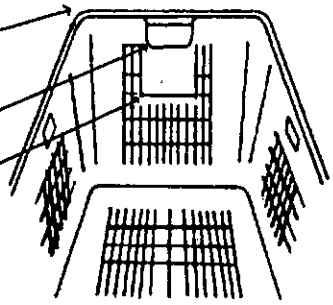
Semi-ellipsoidal solid
Volume = $\frac{1}{2}\pi$abl
V = $\frac{1}{2}\pi$abl





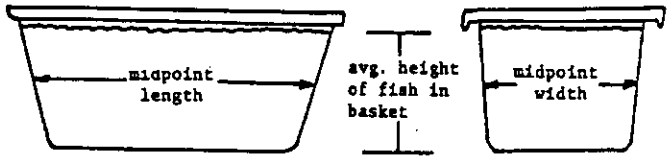
(Allowances can be made for irregular shapes or partially filled portions of the net by the way in which the measurements are taken.)

Top of Basket to Fish Level		Length	Width	Height	Volume
0 cm	Full to rim	.52 m	.365 m	.290 m	.055042 m^3
5.5 cm	To bottom of handle	.51 m	.360 m	.235 m	.043146 m^3
15 cm	To bottom of handle reihforcing plate	.50 m	.350 m	.140 m	.024500 m^3



If you are using a different fill level than the ones above or a different container, measure carefully. The basket sides are sloped slightly, so use the midpoint width and length measurements. Remember that the midpoint is half the distance from the bottom to the level **of fish** in the basket (or other container) not to the top of the basket.

Midpoint length x height of fish x midpoint width = total volume



It is also important to examine the way that the fish are packed in your basket or small container and make sure that it approximates the way that the fish are packed in the fish bin or codend. For instance, if you have very large fish in your basket, such as Pacific cod or turbot, they may not be lying flat on top of each other as they would in a large fish bin. The density of the fish in the basket will be less than the density of fish in the bin because there are more spaces or air pockets between the fish in the basket. It is appropriate to arrange or settle the fish into the container to minimize the interstitial spaces but do not compact or smash the fish in an attempt to duplicate the force in the codend. Your resulting density value would be too subjective. A better solution would be to find a larger container or have one built.

After the volume of an average basket is calculated, you need to obtain the average weight of four or more baskets. Be careful to take a random sample of the catch and to fill all your baskets consistently to the same level. Then simply divide the average weight of a basket by the average volume of a basket to calculate the density value for that haul. Using the volume of the fish in the codend or live tank and the density of those fish, you can calculate a total catch weight estimate. Remember:

The height of fish in the bin is the third dimension needed to determine volume. If the bin is sided with common width boards of known dimension, use the height of each board to estimate the height of fish in the bin. If the bin is sided with metal plate, ask if you can use some paint to make a height gauge at four places on the sides. If the floor of a bin is a half cylinder and/or is sloped, it may be easiest to determine the volume to level and then mark the sides of the bin from level to the top in increments of 10 cm. The volume to level would be added as a constant to the level area times the average depth from level to the top. Alternatively, the tank sides could be marked from the top down so you can calculate the volume of air above the fish (also termed ullage) and subtract that from the "full bin" volume. Be aware of overhead structures which may reduce the volume capacity of a bin when it is filled above a certain point.

To determine an average height of fish, it is best to measure the height of fish at four or more points around the inside of a bin. Height gauges painted on the sides of tanks below deck might be read by standing on the trawl deck and looking down into the tank through the hatch(es) or you may be able to go below to the tank and see in over the sides or through a viewing port. With deck bins, some observers have improvised a calibrated "dip stick" to measure fish depth at several points. Again, the area of the fish bin (a constant) multiplied by the height of fish from that catch equals the volume. Volume times density equals the catch weight.

There is no need to be surreptitious about your estimates of catch weight or composition. In some cases, captains have improved their record keeping by learning from the observer. On the other hand, do not argue with the captain about catch estimations. His logbook hail (deck) weights do not have to equal or even approximate yours.

Notice on the example 2US form that the observer was not able to make an independent estimate for every haul. This is typical aboard a catcher/processor but an observer aboard a catcher-only vessel should be able to estimate nearly every haul. Official total catch weight estimates, however, must be made for every haul. Whether you use the observer estimate of total catch as the OTC or one of the other options explained below, whatever you decide is the OTC weight is the figure you must use when you refer to the total catch in your composition data and catch reports.

The observer estimate of total catch is only one of several sources of information which may be used to determine official total catch. To make those estimates, use the following lists of options which are arranged by vessel type. For your final report, document in your logbook the circumstances which led you to choose the method(s) you used.

(500 kg), and the crew assisted the observer by putting it aside to weigh. If one undesirable species is prevalent, that part of the discard could be counted by the observer if they have the cooperation of the crew. An average weight, as obtained from a sample of about 50 or more individuals, multiplied by the total number would estimate the discard weight of that species. Then, any other discard would have to be weighed and added in for a total discard weight. This method can be extended to two prevalent discarded species. The observer must not rely on crewpersons to count fish they are throwing overboard; crew are not employed to make accurate counts!

If fish to be discarded were all thrown or shoveled into a small holding bin and they accumulated to a measurable depth, the weight of the discard might be estimated with a volume to weight ratio. Refer to the previous section on Observer's Estimates for calculating weight of discarded fish from a measurement of their volume. Also, If the last catch of a trip is used to top off the holding tanks and a large amount of the catch is dumped back, do your best to estimate the tonnage by codend volume or use an estimate made by the deck boss or skipper.

Obtaining Delivery Weights: The best data are obtained when the observer is on the dock to verify the delivery weight by copying the scale weights recorded by a factory worker or by copying the electronic printout. By doing this, the observer has delivery data available immediately and can see and understand the operation more clearly. This is better than waiting for and trying to figure out the fish ticket.

In case the vessel observer needs a break from sampling, or must get back aboard their vessel before the catch is finished being sorted, the plant observer needs to check with the vessel observer to arrange to stand in or complete sampling the delivery and to get sampling and delivery weight data to the vessel observer when they're done. Data may be held until the next delivery to that plant or it may be sent on to the next plant delivered to.

Some plants have had a policy of subtracting a percentage of the delivery weight to adjust it for water in the weighing hopper. If you suspect this, document what you've heard and look at the weighing hopper yourself to see if there is water in with the fish. Ask the plant personnel if there is a standard percentage for water weight being used. If there is a difference between scale readouts and fish ticket weights, use the fish ticket weights for the target species.

In addition, watch for an "A" designation on products such as cod stomachs. This refers to ancillary or additional product produced from fish already listed on the ticket. As the fish used to produce these ancillary products should be accounted for based on their primary product, it would be incorrect to convert ancillary product weight to round weight and add it to the total for a retained catch weight.

(3) The three digit ADF&G species codes are the same as the observer report group codes but are not the species codes which the observer uses for sampling forms such as 3US.

(4) Do not assume that the weights and species identification of discarded fish are complete and correct. Processing plants pay very little attention to discard figures. They generally weigh the discarded fish as a group and record it on the ticket but do not include this weight in the total delivery weight of "money fish". The composition of this discard is generally reported as "waste" fish or "flatfish" and is generally composed of several species. Fish that were discarded at sea may or may not have been reported on the ticket.

5) Do not assume that the total weight at the bottom of the ticket includes all the species weights listed on the ticket. The total weight is probably only for fish paid for.

6) Figures given for crab, halibut and salmon are usually numbers rather than weights.

Proportioning Delivery Weights: Choose the best option for proportioning delivery weight--the skipper's deck estimate of catch weight, your observer estimate, or your estimate by band count of relative percentage of haul size. **Whichever estimate you choose, use only one source of catch estimates for proportioning a delivery.** If four hauls make up a delivery for instance, do not use the skipper's estimate for hauls one and two and your observer estimate for hauls three and four to proportion the delivery weight. Choose one type of estimate. For the next fishing trip, you may make a different choice.

Observers are often unsure of their own total catch estimates when they are only seeing a couple sections of the net on deck at one time. As you record the skipper's deck estimate next to your own on the Form 2US, do not assume that because your estimate is different from the skipper's by more than a few tons, there must be something wrong with your estimate! Do your best to check your work. Ask the skipper how he makes his estimates. Learn all you can about the vessel's hold capacity, net specifications and accuracy of delivery weights. All of this information will help you decide which is the best estimate to use for proportioning.

To begin with, the skipper's deck estimate or hail weight is the easiest to use. Until you can refine your technique and gain confidence in making your observer estimates, you should at least note the relative fill of the net from one haul to the next. Band counts should be combined with estimates of codend height and width though, because larger catches may fill the same number of bands and simply expand and bulge each net section. Observers in a shoreside pollock fishery where the haul sizes are consistent sometimes use the count of full bands on the codend to determine

the OTC is a good alternative until you have improved your own method. Do work on improving your own estimates until you can use them with confidence.

CATCHER/PROCESSOR TRAWLERS
OFFICIAL TOTAL CATCH WEIGHT ESTIMATION

Options List:

1. Record the weight of catch weighed by the vessel.

2. The observer is able to make an estimate of catch volume for every haul and calculates weight with a density value (which may be averaged for hauls not sampled for density).

3. The observer's volume to weight estimates are used when available but the skipper's deck estimate (or adjusted estimate) is recorded for catches not estimated by the observer.

4. The skipper's deck estimate is recorded as the OTC weight if the observer is unable to make independent volumetric estimates, or is not confident in his or her technique at the start of a trip.

Methods and Considerations

Option 1: Use the weight of the haul as weighed by the ship. As explained for catcher vessels above, if the vessel weighed its catch before sorting, this would be the best (and easiest!) weight to record for OTC. As of yet, few if any vessels are equipped with these conveyor belt, flow scale weighing systems installed prior to the catch sorting stations.

Option 2: The observer makes volume estimates of all catches from (a) the live tank or bin, or (b) the codend and calculates weight with a density value which may be averaged for hauls not sampled for density.

The methods for observers to use in making volumetric estimates of catch size and weight have been presented in a previous section. If the observer's catch estimates are being used as the official total catch, try to estimate as many of the catch weights as possible. However, if hauls are coming in around the clock and there are more than five hauls per day, it will be difficult to estimate them all.

Option 3: Observer's volumetric estimates are recorded when available, but the captain's deck estimate or an adjusted estimate is recorded as OTC for catches not estimated by the observer.

The skipper or mate on watch will commonly make a deck estimate by looking at the codend and counting the number of expansion strap sections full of fish. The amount of fish between each strap will often be added as a consistent unit of weight even if the amount per strap is not consistent.

1996 PROCESSOR CODE LIST

CODE	NAME	CITY
F0528	10TH & M SEAFOODS	ANCHORAGE
F2194	ALASKA CUSTOM SEAFOODS	HOMER
F0321	ALASKA FRESH SEAFOODS	KODIAK
F1814	ALASKA GENERAL PROC.	KETCHIKAN
F0210	ALASKA PACIFIC SEAFOO	KODIAK
F0937	ALASKA SEAFOOD CO.	JUNEAU
F0403	ALASKAN GOURMET, INC.	ANCHORAGE
F1991	ALASKAN LEADER	KODIAK
F0622	ALEUTIAN DRAGON FISHE	CHIGNIK
F0222	ALL ALASKAN, KODIAK	KODIAK
F1804	ALL PORT FISHERIES	SITKA
F0753	ALYESKA SEAFOODS	UNALASKA
F1255	ANDERSON SEAFOODS JV	SEWARD
F9517	ANNETTE ISLAND PACKIN	METLAKATLA
F1795	AQUATECH	ANCHORAGE
F1861	ARROWAC FISHERIES INC.	BELLINGHAM
F0001	ARROWAC-JAMES INT'L	SEATTLE
F0305	ATKA FISHERMEN'S ASSO	ATKA
F1973	ATKA PRIDE SEAFOODS, INC.	ATKA
F1759	BESSIE-M SEAFOODS	HOMER
F2169	BROOKS ALASKAN SEAFOOD	HOMER
F0984	CAN-ALASKA SEAFOODS	KETCHIKAN
F1673	CANNERY ROW FISH CO.	CORDOVA
F1940	CHATHAM STRAIT SFDS.	PETERSBURG
F0365	CHIGNIK PRIDE FISHERI	CHIGNIK
F0132	CLAUDIA'S FISHERIES	SITKA
F1840	COAST TO COAST SFDS, INC.	SEATTLE
F0186	COOK INLET - KENAI	NIKISKI
F1155	COOK INLET - KODIAK	KODIAK
F1070	D & G ENTERPRISES	EAGLE RIVER
F1051	DEEP CREEK CUSTOM PAC	NINILCHIK
F0030	DRAGNET FISHERIES CO.	KENAI
F0110	E.C. PHILLIPS & SON,	KETCHIKAN
F1053	EMERALD ISLAND GOURME	KODIAK
F1013	FAROS SEAFOODS, INC.	KODIAK
F0398	FAVCO, INC.	ANCHORAGE
F1552	FISHERMEN'S QUAY	KETCHIKAN
F1500	GARDEN COVE SEAFOODS	

F2213	PRISTINE SEAFOOD COMP	SITKA
F0331	QUEEN-EAST PT. DUTCH	DUTCH HARBOR
F0330	QUEEN-EAST PT. KODIAK	KODIAK
F1093	ROYAL ALEUTIAN SFDS.,	DUTCH HARBOR
F0409	ROYAL PACIFIC FISH.	KENAI
F1485	SAHALEE OF ALASKA	ANCHORAGE
F0037	SALAMATOF	KENAI
F0493	SALTRY INC.	HALIBUT COVE
F0223	SEA HAWK SEAFOODS, IN	VALDEZ
F0709	SEA LEVEL SEAFOODS	WRANGELL
F1206	SEAFOOD PRODUCERS COL	SITKA
F0172	SEAFOOD PRODUCERS COO	SITKA
F1372	SEASIDE SEAFOOD	KODIAK
F1356	SITKA SEA MART	SITKA
F0147	SITKA SOUND SITKA	SITKA
F0900	SITKA SOUND YAKUTAT	YAKUTAT
F0983	SPECIALTY FISH PRODUC	ANCHORAGE
F1936	STAR OF KODIAK	KODIAK
F0115	TAKU SMOKERIES	JUNEAU
F0939	TRIDENT SFDS AKUTAN	AKUTAN
F0940	TRIDENT SFDS SAND PT.	SAND POINT
F1927	TRIDENT-ST. PAUL	ST. PAUL
F1605	UNALASKA SEAFOOD COMP	UNALASKA
F1373	UNIPAC	ST. PAUL
F0188	UNISEA BARGE(ST.PAUL)	ST. PAUL
F1180	UNISEA, INC. DUTCH G1	DUTCH HARBOR
F1325	URSIN SFDS. 511 SHEL.	KODIAK
F0266	WARDS COVE ALITAK	SEATTLE
F0274	WARDS COVE EXCURSION	EXCURSION
F0268	WARDS COVE PT. BAILEY	KODIAK ISLAND
F1379	WARDS COVE SEWARD	SEWARD
F2000	WASH. FISH & OYSTER	SEATTLE
F0320	WESTERN AK FISHERIES,	KODIAK
F1366	WESTWARD SEAFOODS	DUTCH HARBOR
F0319	WRANGELL FISHERIES, I	WRANGELL
F2278	YKI FISHERIES	YAKUTAT

SPECIES COMPOSITION OF THE CATCH
FORM 3US

OBJECTIVE:

Resource managers need composition of catch to determine, for each gear type, what species will be caught in association (bycatch) with the species of interest (target species) and in what relative quantities. One fisherman's discarded bycatch is another fisherman's target species. Groundfish fishing (target species: pollock, cod, flatfish, rockfish, sablefish, and Atka mackerel) geographically overlaps all of the other major fisheries of Alaska (halibut, salmon, crab, shrimp, herring). Observers species composition data is used for both in-season management of the fishery and for long term stocks assessment. Strive for data that is representative of the catch over time by collecting random, unbiased samples of unsorted catch. Topics:

Since it takes most observers a couple of days to set up their sampling station, observe the operation, and get comfortable with their sampling duties you do not need to use the Random Sample Table on your first day or two of sampling. Observers on catcher processors should begin using the table on their second or third day on board, and observers on shore-side delivery vessels should begin using the table on their second trip, or as soon as your sampling methodology is established.

If you find that this sampling schedule is too rigorous, consider and try the following recommendations. 1) If your vessel is a catcher/processor or mothership, use the break table each day or on some days as needed. 2) Reduce the sampling time by reducing the sample size of one or more hauls in the series. Sampling a catch on a c/p vessel should usually take two to three hours. If you are spending more than three hours per sample you will not be able to stick to the table when four or more hauls per day are being landed. If you were sampling the entire catch for prohibited species, try cutting back to a smaller sample size so that all designated hauls in the series can be sampled. It is more important to have good sample collection technique, smaller samples and stick to the random sample table than to sample the whole catch and sample fewer hauls.

3) It is important that you look ahead at your schedule and plan to make best use of your rest time. For example, if the table dictates that you have a four on, one off, four on schedule, get more rest before this series and plan on getting paperwork, chores, and meals done in between samples so you have as large a block of rest time in between the sets of four sampling hauls as possible. Consider altering your sampling method. Is it practical to whole haul sample a series of four hauls or will you need to basket sample some to complete the set? If you were to basket sample from the first part of one haul and sample the last part of the next haul (assuming presorting is not a problem), you get a larger break between hauls while still avoiding stratification over time. This is not as good as sampling from all parts of each haul but is acceptable.

4) If you get caught in an unworkable situation you can, if necessary, skip one of the hauls in the series to be sampled but then complete the remainder of the sample series, counting the unsampled haul as part of the block. As in the example of a four on, one off, four on series, if the observer needs to rest for two hauls, the observer should sample four hauls, rest for two, and sample three hauls to complete the series. If it is necessary to skip sampling hauls on a continuing basis, get in contact with an NMFS office for advice.

If you find yourself on a vessel that makes few hauls/day or you don't need as much rest as your sampling scheme allows you, you should sample additional hauls as long as designated hauls are given priority. The NMFS might not use data from additional hauls in Incentive Program calculations, but it will be used in all other analysis programs. In your logbook entries you will be recording when you sample additional hauls and which hauls they were.

If you go to another vessel during your contract, or if your vessel delivers fish to either a plant or a floater, when fishing resumes continue from where you left off in the table. Begin using the table immediately (on a new boat you may need to watch and not sample one haul in the series just to get acclimated). If you were in the middle of a sampling block continue with that block. If you have just finished a sampling block, or if you are in the middle of a non-sampling block, then go to next sampling block as you begin your next trip.

filling in the date of each day, whether or not a break is taken, and taking six-hour breaks when needed (only one per day) using the scheduled time for that date. When you finish the first column, start at the top of the second column and so on.

DATE _____ 0400	DATE _____ 0800	DATE _____ 1600
DATE _____ 1300	DATE _____ 0100	DATE _____ 0900
DATE _____ 0400	DATE _____ 0700	DATE _____ 0400
DATE _____ 1800	DATE _____ 1300	DATE _____ 1300
DATE _____ 1500	DATE _____ 1600	DATE _____ 0500

Although neither the break nor the random sample table is particularly difficult to follow, when you put the two together things can get a little confusing until you focus on the haul retrieval time. If a break is to be taken and it is to start one minute after the retrieval time of a haul to be sampled, sample the haul. If a break starting time occurs one minute before the haul retrieval time of a haul to be sampled, don't sample, take your break. At the completion of the break period you should re-enter the random sampling table. If you are in the middle of sampling when your break starts, finish that sample first, then begin your six-hour break. **Hauls that were retrieved during an *observer's six hour break continue to be counted against the random sample table.*** *In summary:*

1) Each day that you need to take a break, start the break after sampling is completed on hauls whose retrieval time is before the break time indicated on the break table for that day.

2) Break for six hours.

3) Sample the next "on" haul whose retrieval time is after the six hour break.

All observers on trawlers are required to fill out the Trawler Observer Sampling Record in your observer logbook. In your table list the haul number of each haul made, whether it was an "on" or "off" haul (that is, to be or not to be sampled) according to which column and row in the Random Sample Table, whether you were on break and whether you did or did not sample it and the start and end times of your samples. Finally, when an "on" haul is not sampled, we need to know the reason. In your final report we would like to have a written commentary on your difficulties, if any, with using this sampling scheme.

Haul No.	RST On/Off	Col/ Row	Break On/Off	Sampled Y/N	Samp. Time Start	Samp. Time End	Reason for "On" Haul Not Sampled
34	on	H/C		Y	1630	1825	
35	on	H/C		Y	2005	2200	
36	on	H/C	on	N			Break
37	off		on	N			
38	on	H/D	on	N			Break continued
39	on	H/D		Y	0715	0930	

FORM 3US–SPECIES COMPOSITION FOR TRAWLERS

Worksheet

Species:	Yellowfin					
Wt. of above:	86.2					
No. weighed:	306					
Avg. weight:	.2817					

Other calc.& comments: 3 Halibut presorted from deck by crewmember who "didn't know I was going to sample." - See Daily log. Estimates 90cm & 2 @ 150cm Additional 15 minute sampling - found 3 more halibut for 7us

Cruise	Vessel Code	Year	Month	Day	Haul
4011	A110	97	09	01	48

ST = Sampling Type
B = basket
P = partial haul
W = whole haul

Species name	Sex	Species code	ST	Number	Species weight in kg. w/ decimal	Sample weight in kg. w/ decimal	% Retained
(keypunch check)	X	999	X	1017	330.63	X	290
King Crab		2	B	10	0	330.63	
Herring		611		1	.3		
Bairdi Tanner crab	M	4		1	.32		
Bairdi " "	F	4		6	1.89		
Halibut		101		0	0		
Salmon		220		0	0		
Yellowfin sole		140		900	253.4		100
P. Cod		202		6	8.6		100
Flathead sole		103		15	13.36		0
Rock sole		104		30	6.1		90
Alaska Plaice		106		4	2.4		0
Skate		90		1	5.1		0
Sculpin		400		3	2.0		0
Poacher		450		3	.5		0
Starfish		20		9	1.9		0
Arrowtooth FL.		141		4	5.8		0
Pollock		201	↓	33	28.95	↓	0
Lyre crab		840	B	1	.01	330.63	0

FORM 3US--SPECIES COMPOSITION FOR TRAWLERS

Worksheet

Species:						
Wt. of above:						
No. weighed:						
Avg. weight:						

Other calc.& comments: Switched to pollock fishing, non-pelagic (bottom) gear. Partial by bin volume.

Cruise	Vessel Code	Year	Month	Day	Haul
4011	A110	97	09	01	50

ST = Sampling Type
B = basket
P = partial haul
W = whole haul

Species name	Sex	Species code	ST	Number	Species weight in kg. w/ decimal	Sample weight in kg. w/ decimal	% Retained
(keypunch check)	X	999	X	286	267.1	X	297
King Crab		2	P	0	0	21709.2	
Herring		611	|	1	.3	|	
Tanner crab		3	|	0	0	|	
Halibut		101	|	0	0	|	
Chum Salmon	M	221	|	1	3.2	|	
Arrowtooth		141	|	1	2.0	|	0
Flathead sole		103	|	5	3.0	|	0
P. Cod		202	|	4	6.2	|	100
Eelpout		250	|	12	13.1	|	0
Shortspine Thorny		360	↓	6	6.1	↓	100
Yelloweye Rockfish		322	P	1	4.6	21709.2	0
Pollock		201	B	176	173.8	228.6	97
Jellyfish		35	B	79	54.8	228.6	0

SPECIES COMPOSITION FORM 3US - INSTRUCTIONS

The Form 3US is for the recording of detailed composition sampling data by haul. When catches from two or more hauls have been combined before sampling, data still must be recorded by haul. Observing the differences in composition during the emptying of the net will help in attributing catch to particular hauls, or the composition must simply be proportioned to hauls based on relative catch weight. (See also the section on "Mixing of Hauls".)

1. Enter the **date, and haul number**. (The cruise number and vessel code will normally be given to you during debriefing.) Remember that the date of the sample should correspond to the information on Form 2US. The date should thus be the day the trawl began to be hauled in, which is not necessarily the date you sampled it.

2. Group your species composition samples by the sample size and enter data from the **largest sample first**. Skip a line between sample types (see examples).

3. **List prohibited species first.** Usually these groups have the largest sample weight. Each of the five prohibited species groups must be represented on each form. It is necessary to have some indication of how much catch was monitored for each of the prohibited species groups--king crab, herring, Tanner crab, halibut, and salmon. If no individuals of a species group are observed, then the observer enters the group name, species code (use codes 2, 611, 3, 101, 220), sample type, sample weight, 0 for the number, and 0 for the weight. (See the 3US examples.)

4. List each **species** or species group **by their common name** and the corresponding code from the Species Code List on 4 - 1. Look up a species under its group name--rockfish, sculpin, sole, etc. Most fish, especially the commercially important species, should be identified to species, if possible. See also the section on Species Identification which precedes the Code List.

5. Each **species code may only be listed once** for each haul except those listed also by sex -- salmon, king and tanner crab. You cannot have two sample weights for any species.

6. All **Tanner crab, king crab, or salmon** should be listed separately by species and sex whenever possible. For these species only, **record an "M", "F", or "U"** in the column for sex. Do not sex halibut or herring even if they're dead. Leave the column for sex blank for halibut and herring.

   Sub-sampling: If large quantities of one of the crab or salmon species groups are seen, it is permissible to take a random subsample of the group and record the subsample by species and sex. Then, either count or weigh the rest of the group and apply an average weight (from your subsample totals) to get the weight or number. Record these remaining ones as tanner crab, king crab, or salmon unidentified and unknown sex. Make sure that no individual is recorded twice on the forms (none of the subsample should be reported in the larger group of

the form. Estimated and actual weights may be added to obtain the total weight of a species in your sample, such as halibut. (Note: For halibut there is a statistically valid length/weight relationship that can aid you in estimating the weight of large individuals, refer to the table on 3 - 41 and in the appendix. Length/weight relationships cannot be predicted for other species.)

39

13. **Sample weight** *is the amount of catch sorted through* from which the species listed were found. Enter the sample weight for each species, using a well-defined decimal point and one or two digits following the decimal. If you whole-haul sampled for the species composition, the rounded sample weight, if converted to metric tons, must match the official total catch weight on the Form 2US. This should be an obvious point when sampling the whole haul, yet this is an easy mistake to make when using an un-rounded weight which is a conversion from pounds to kilograms.

    If you basket sample, the sample weight must equal the sum of the weights of the individual species that were basket sampled.

14. **% Retained** is a rough estimation of the round weight (before processing) of each species kept divided by the weight of that species caught in the sampled haul. Retention applies to organisms kept for any reason such as: consumption, processing, delivery, souvenirs, or home pack. For halibut, salmon, herring, king or tanner crab, leave this column blank. For all other species in your sample, an entry is required. Your methods of estimating these values are explained later in this section. Express this estimate as a whole number, to the nearest whole percent. While one or more target species may be near or at 100, many species caught will all be discarded and their % retained is zero. (The sum of the % Retained column should not add up to100!)

15. **Complete the keypunch check (line 999 at the top of each form)** by adding all the figures *in each of the Number, Species weight, and % Retained columns and entering the sum of* each column on the top line. The sums serve a valuable role as a keypunch check and it's important that you double check your summations.

16. Record on the **worksheet, at the top of the form,** any raw data such as samples for average weight that might otherwise be lost because an extrapolated figure is entered on the keypunched portion of the form. Use the worksheet for:

    - ➤ average weight sample data and results to three or four decimal places.
    - ➤ numbers and weights of presorted fish (see also 3 - 28)
    - ➤ halibut length to weight table values
    - ➤ estimation method of other organisms too large to weigh, see example 1.
    - ➤ total number tallied of a predominant species.

17. **Note in the comments** section anything unusual about the catch or sampling. If you changed your method or sample size, what caused this? If the composition changed because the vessel

Whole haul sample - The entire catch was sorted, or the sorting was supervised, by the observer. When converted to metric tons and rounded to hundredths of a ton, the sample weight must equal the OTC weight as recorded on Form 2US.

OBJECTIVES AND RULES FOR SPECIES COMPOSITION SAMPLING

Determination of the species composition of the catch is one of the high priority duties of an observer. When random sampling, the relative amounts of species in the sample will not necessarily reflect their proportion in the haul. However, from many samples taken within an area/week, a reflection of the relative species proportions over time should be apparent. **Never** should you "hand-pick" a "representative" sample based on your visual estimate of the composition. Observer's species composition samples must be collected such that fish (or organisms) from any part of the catch could have landed in the observer's sample.

For several fisheries, the sampling method is prescribed. In others, it is up to you to choose a sampling method and devise a sample collection technique which is most appropriate for your situation. If you feel you must deviate from the methods described in this manual, contact an Observer Program office for consultation and document your procedures fully. Remember, you must have defendable sampling data to back up any assumptions that form a basis for the rest of your data collection. When you have a choice of sampling methods, you'll face the natural constraints of your available time, energy, and work space. You must also consider the size of the catch and its diversity. To guide your judgement in choosing a sampling method, please also comply with the following:

1. Strive for data that, over time, is representative of the catches by collecting random, unbiased samples. Believe in the scientific method of random sampling and in the "long run" accuracy of it. As a result of reducing your sample size, you may find that a species whose occurrence is "patchy" is over-represented in some of your samples and under-represented in others. After many samples, the level of occurrence will closely approximate the true value (assuming random samples). Remember that in many analyses your data will be merged with other observer's data in that area, year, month and vessel type classification. **It is better to produce accurate data using a small sample size than to have a much larger sample size with dubious data.**

2. Allocate your time appropriately. Maximize your sample size according to the amount of time you can afford for a haul. Keep in mind your schedule according to the Random Sampling Table, the scope of your duties, and priorities.

3. The weight of catch which was sorted by the observer is the "sample weight". You must be present to sort, or directly supervise the sorting, of **all** of every sample. If you see or suspect that the sorting of your sample is not completely thorough, reduce your sample size and/or change your sampling method until you can control the sorting. You must ensure that the fish passing by you are not too deep or moving too quickly for you or those you are supervising to sort.

information in your particular situation. Devise a sampling scheme which will provide **complete** species composition data for any sampled haul.

Whole-Haul Sampling

Criteria:

- When sampling on a c/p for all species groups, hauls must be almost pure (1 - 5% bycatch weight), as is typical of the pollock or whiting fisheries. Consider that one percent bycatch in a 50 mt haul is 500 kg, or about *thirteen* 40 kg baskets of bycatch!
- For whole haul sampling only one or more of the prohibited species groups, the catch weight composition may be diverse as long as there are not too many prohibited species per ton of groundfish to deal with.
- You are "upstream" of any sorting of the catch
- The flow of fish is such that you are able to see everything in the haul; either the flow of fish is slow and controlled or the flow of fish is shallow. A processing rate of 25 mt/hr is probably too fast for you to accurately whole haul sample.
- On a c/p, sorting the catch does not usually take more time than you can afford.

When your vessel is fishing pollock in Alaska or whiting (hake) off Washington and Oregon, hauls commonly have less than one percent bycatch. You may choose to whole haul sample for all species aboard a catcher/processor or mothership vessel but when working aboard a catcher-only vessel you must basket sample at sea for target and bycatch species and whole haul sample for prohibited species during delivery to the processor.

When whole-haul sampling on a c/p for all species groups, the entire *unsorted* catch must pass by you at one point and you must be able to see and pull out all bycatch for counting and weighing later. The observer cannot weigh the whole catch but does *sort through all of it.* Or, when whole haul sampling for only one or more of the prohibited species groups, only those species are pulled from the catch during sorting. The sample weight, when rounded, is equivalent to the Official Total Catch weight. Partial haul sampling is a variation of this where the observer samples a large portion of the catch and sorts it for bycatch or prohibited species. In a pure pollock fishery, catches will normally be whole or partial haul sampled, at least for prohibited species, which allows for a larger sample weight. On catcher/processor vessels however, if processing is very slow, the observer may have to change to partial haul or basket sampling if sorting the entire catch will take too long, leaving no time for other duties. Another problem, when looking at many tons of pollock over a long period of time, is that accuracy may suffer. In this program we place a high value on thorough, accurate sorting.

An observer must be present **at all times** to sort or supervise the sorting of bycatch when whole haul sampling. Ideally, the fish flow passing by the observer at one point would be **slow** and **shallow** to allow for the complete sorting of catch. If you are sorting out bycatch along with the crew, make sure they know that you are sampling (not just helping out) and that you need the bycatch set aside for you. Do not have crew simply count bycatch for you and then rely on their counts multiplied by an average weight. It is too easy to lose count and you can't supervise what's going on in their minds!

sample for prohibited species. Then the number and weight of each species are proportioned to individual hauls based on relative catch weight as estimated at sea.

During pollock fishing at sea, if the crew is sorting and discarding some fish, you must take your composition sample from unsorted catch and ask that any prohibited species pulled out be given to you to sample. You must work in a place where you can supervise their sorting to be confident that you have not missed any prohibited species being tossed out. If you obtain prohibited species from sorting at sea then the whole delivery must be sampled at the plant. Partial delivery sampling is not an option at that point. The data for prohibited species discarded at-sea is added to prohibited species data obtained at the plant. If there was an unusually high incidental catch of a prohibited species being sorted at sea, you could just count them and then sample for and apply an average weight to estimate their total weight.

Flatfish and cod catches are usually sorted at sea on catcher boats but normally the composition is too diverse to whole haul sample for all groups of species. In a cod or *Gulf of Alaska* flatfish fishery, a catcher boat observer might sample the whole catch for one or more of the prohibited species groups at sea but will usually basket sample for all other species. (Bering Sea flatfish fisheries have a special sampling requirement, see 3 - 29.) However, if the catch was washed or sluiced from the deck into the tanks, the vessel or plant observer should monitor the sorting line at the processing plant to get prohibited species missed during sorting at sea.

Partial Haul Sampling

Criteria:

- *sorting the bycatch or prohibited species from the whole haul would be too much to handle or* take too long because the catch is large and/or because the processing rate is slow, but you are still able to sample a fairly large portion of the haul.
- the catches are still very pure or else they are relatively small
- you are "upstream" of any sorting of the catch
- the flow of fish is such that you are able to see everything in the portion of the haul that you are sampling
- **you are able to get an accurate sample weight** (this is discussed below - read carefully!)

There may be times when whole haul sampling is not possible; you are faced with a haul containing large numbers of non-target species (bycatch), an unreasonably long processing time, extremely large hauls, or insufficient access to the entire haul. Sampling only a portion of the haul is an alternative. The sampling procedure is the same as when whole-haul sampling, but bycatch is collected from only a portion of the haul and your sample weight is less than the Official Total Catch weight. **There are only two methods you can use to determine your partial haul sample size.** Visual estimates such as "about ½ or ¼ of the catch" are not allowed. Using the OTC minus an estimate of unsorted catch dumped at sea is not allowed. *If you use a partial haul sample method you must report all sample size calculations in your logbook!* Remember, fish tend to stratify in a bin, and if you are frequently partial haul sampling you need to sample from different parts of the bin or hold. If sampling from all parts of the catch cannot be done in each sample, then sample different

On 3US, the entries for only the bycatch (non-tallied) species are recorded under sample type "P" for partial haul sampling. The sample for average weight of the tallied species is recorded below this as a weighed, or basket sample, sample type "B." Record the *total* number of fish tallied on the worksheet at the top of the form.

When sampling for prohibited species, the tally method cannot be used to determine a partial haul sample weight. This is because getting a tally sample weight is dependent on accounting for the weight of all the fish sorted. When sampling for prohibiteds, other bycatch is not also pulled out and weighed.

Partial haul sampling methods not to be used: There have been other methods for deriving a partial haul sample weight used in the past which are *no longer acceptable*. Sometimes a difficult situation calls for creativity. If your solution doesn't clearly fit methods described in this manual, contact a NMFS office for authorization. On some c/p vessels there may be two conveyor belts emptying fish out of one live tank. If you monitor one of the two belts until the tank was empty, you *cannot assume* you sampled half of the haul. The speed of the belt and the depth of fish on the belt are too variable to use this generality. Using the tally method would be more appropriate. There are also vessels that divide their catch among two or more bins. If the catch fills two bins of equal size and you sample an entire bin you cannot assume that you sampled half the haul. Calculating an actual bin volume is required. Another method which is not acceptable is timing either a crewman or a machine.

Basket Sampling

Criteria:

- The rest of the species have been sorted from a whole and/or a partial haul sample and a sample of the predominant species is needed.
- The catch is diverse in composition as in the flatfish and/or P. cod fisheries or,
- the available time or the situation does not permit whole or partial haul sampling.
- The entire catch is actually weighed, as is done at plants,
- or you are sampling a Bering Sea flatfish catch where it is stipulated, because of the Incentive Program, that observers must use a "Basket" sample method.

In the course of your work you will be collecting baskets of fish for various purposes. However, when employing "Basket" sampling for species composition, this means that ***your sample is limited to an unbiased, random selection of organisms which were actually weighed. Weights based on average weight multiplied by the number and halibut weights off of the Length/Weight Table are not acceptable.*** A basket sample is ***not*** necessarily a sample collected and weighed with baskets. A variety of containers are used to collect and weigh the sampled catch: brailers, checker bins, garbage cans, totes and hoppers. Weighed or "Basket" sample sizes may range from the total catch weight to the weight of fish in one basket. The Observer Program's *guideline* is a 300 kg minimum sample size. If your sample weight is less than 300 kg there is usually *no problem* as long as the sample was collected in a random, unbiased manner, but an explanation for small sample sizes is requested. Be sure to record under "Daily Notes" in your logbook any difficulties you encounter.

checker bins (compartments on either side of the trawl deck). If they are not filled with too much fish, the observer could sort, count and weigh all the catch dumped into one of these checkers. The disadvantage of this is that the sample comes from only one part of the catch. Different bins might be used for other hauls or that bin could be filled from different parts of the codend on other hauls.

The best way to fill baskets is to "catch" the fish as they are flowing from point A to point B by inserting a basket into the flow or *diverting* the flow of fish into a basket. It may be possible to get samples directly from the codend by getting assistance from a crewman on the deck to hold a basket into the flow of fish as they fall from the net onto the deck but carefully consider your safety. If the catch is piled in a deck bin or the trawl alley, avoid shoveling fish into the blue baskets. Shovels are very size selective. The baskets are also size selective and make very poor shovels. Avoid size and personal bias in filling the baskets. Look at the sides of the trawl alley for hatches which can be raised to allow catch in the alley to spill through into a side pocket for sampling. If this can be done with small amounts of catch several times, the sample will more likely come from different parts of the catch. The rim of an overturned basket or a hatch cover in the deck might be used as a sampling circle. Any organism touching, or inside of the circle, is part of the sample. Again, try to take your sample from different parts of each catch.

Once the sample has been taken, there are two ways to handle the weighing of the species groups. One method is to *sort the sample before weighing, then weigh* each species group, count the number of individuals making up each group, and total the weights of each group to obtain the total sample weight. A second method may be more practical when plant sampling or when one species is most prevalent in the sample. In this method, *the unsorted fish are weighed, then the observer sorts* the sample by species. Count and weigh the bycatch species groups. The weight of the dominant species group can then be obtained by subtracting the total weight of the bycatch species groups from the total sample weight. Divide the total predominant species weight by their average weight to obtain an estimate of their number.

With organisms such as brittle stars or jellyfish it might be easiest to weigh them all and divide the total species weight by their average weight to obtain an estimate of their number. Try to sub-sample at least fifty organisms for average weight. *However, **in a Basket Sample**, the weight of a species group may **only be obtained by actually weighing** or by subtraction of actually weighed fish. In a basket sample, **halibut weight cannot be taken from the Length/Weight Table** and a species weight may not be obtained by their average weight times their number.*

Three Sample Types (W, P, & B) In One Haul

Using all three sample types to sample one haul is more to keep track of than most observers want to tackle but this type of sampling is employed occasionally on catcher/processors targeting pollock. It may occur when, for instance, the observer starts to whole haul sample for all species and then discovers there is too much bycatch to handle. (This observer would have to have measurable fish bins and have taken an initial depth reading.)

Typically, the crew will sort out the obvious prohibited species at sea and you will need to count, weigh, and measure them. Note these data in the comments section of the 3US form and leave room for them to be recorded in the keypunch section as you will likely find more prohibited species to add to that haul as you sort at the plant. From salmon take a scale sample and check for a clipped adipose fin indicating a coded wire tagged salmon. As the ship delivers its catch, it will be necessary to sort the off-load only for the prohibited species. Do not attempt to do your composition sampling at the plant.

Some Bering Sea catcher boats have sorting belts below deck and sort their catch at sea. Sorting at sea, even for prohibited species may not be thorough enough. The only way to check this is to sort the delivery at the processor. You will need the plant observer to help.

Any catcher boat skipper may dump large amounts of catch at sea if they don't like the size of the target or the amount of bycatch in a net. When a vessel's catch exceeds its hold capacity they may try to bring in a deck load of fish held in the net. Some plants won't buy deck loads because of the fish getting too warm. So, sometimes skippers will top off their tanks and dump large portions of their last catch at sea. If a large part of a codend was dumped at sea, though the whole delivery was sampled, that haul will have to be listed on the 3US form as a partial haul sample for prohibited species. [Note: This means none of the species in the catch were 100% retained. If this happens, refer to instructions for percent retained later in section three.]

The first time your vessel delivers to a plant, catcher vessel observers should make a point of meeting with the plant observer (if any) before sampling to have them show you around and familiarize you with the operation. Find out how you can leave messages for the plant observer to arrange for them to spell you when you need a break, get the data they collect, or to send your catch messages to Seattle.

We ask that you sample the entire delivery for the occurrence of prohibited species. For that reason, you must stay with your vessel or at least in touch with your ship prior to off-load to insure you don't miss any of the delivery sorting. Delivery schedules and locations can change with little notice when the pressure is on to get back to fishing. ***You must not leave and miss part of the off-load, unless a plant observer is ready to take over while you are away.***

The weight and number of prohibited species found in monitoring these off-loads will have to be proportioned to the respective tows based on the relative catch weights of the trip. Then for each prohibited species, the total for each haul is the proportioned numbers and weights from the delivery sorting plus those sorted out at sea.

Sampling the Kodiak Pollock Fishery: Observers on shoreside delivery vessels out of Kodiak during pollock openings have a special set of circumstances that necessitate the sampling routine described above. Experience has proven that this is the best overall scheme for this fishery in Kodiak. Vessel observers must not change the sampling scheme and then leave extra work for a plant observer to cope with.

2. If all efforts to eliminate presorting haven't solved the problem, collect numbers and weights of all species that are presorted, for halibut you can collect lengths instead of weights. The fastest way to get lengths is to take your tape measure or measuring strip to the fish. Make sure you're not getting a curvilinear length. Or you could create a measuring "stick" for quick lengths. At the least, estimate the size and try for accurate counts of what is being tossed. Continue to log the presorting incidences in the Daily Notes section.

You also have the option of notifying NMFS of the problem. However, if you do we will assume that you want us to address the problem with the vessel and company. We will respond by sending written notification to both that we understand there is a problem with presorting on your vessel and reminding that presorting is specifically addressed in the regulations. Although this may solve the problem it may also put you in a difficult position on the vessel. You will have to weigh the pros and cons, and make the decision you feel most comfortable with. Regardless of your decision continue to document presorting in your logbook.

3. Why is it important to collect numbers and weights (or lengths for halibut) of presorted species? The measured lengths and viability of the halibut are important data to record on the 7US form. (Remember do not record estimated lengths on 7US). For halibut, convert both measured and estimated lengths to weights using the table in the manual. For non-halibut species that you counted but could not weigh, multiply the number by an average weight (calculated from actual numbers and weights for that species from like hauls). If you are whole haul sampling, add these weights and numbers to your sample data. If you are partial haul or basket sampling, these weights can be used to correct your data.

Depending on the weight of the presorted species, your sample size, and the haul weight, presorting may or may not have a significant effect on your data. In the worksheet section of each 3US form for hauls with presorting, record the weights and number of all presorted species in that haul unless you have been able to account for them in your data. (They may be included in your data by changing your sampling method to whole haul sampling for halibut and including the number and weight of presorted ones or making a whole haul entry for the occasional large shark, giant squid or possibly, large skate.) During your mid-cruise check-in or when debriefing, advise the NMFS staff member of the problems you encountered. The staff member will determine if your data needs to be revised to account for the presorting. Regardless of the degree of presorting, it is of **vital importance** that you record the numbers and weights at the top of the 3US, and continue logging all occurrences in your logbook.

Mixing of Hauls On C/P Vessels

A special sampling problem exists when hauls are being unavoidably mixed and you must sample after mixing occurs. If this happens, there are at least three possible courses of action:

1) Look at the arrangement and capacities of the fish bins and consider the frequency and tonnage of the fish being delivered. If it is possible to do so, ask the captain or fishing master to keep the hauls separate. If several bins empty onto the conveyor belt from which you are sampling at one

observer sampling station and are later washed out of the vessel, these too should be considered as discard. To provide guidance, the following are acceptable methods to determine percent retained by species for the major gear types:

Catcher/Processor Trawlers: In most instances, this estimate will only be a visual approximation based on the observer's best judgement and observations of what is going on in the factory. For this figure, it is acceptable to make your best guess. In some cases, however, the vessel may have a rigid method for selecting a certain size or sex of fish which is applied consistently to the catch. If that is true, it is acceptable to use the composition sample to determine the weight of fish that would be sorted out by size, sex, or species in the factory. It is also acceptable to just make your best estimate. In making your approximation on a catcher/processor, if any part of a fish is retained then the entire fish is counted as retained. A cursory look at factory production figures, followed up by further investigation, might make you aware that a particular species group is sometimes utilized when you thought it was always discarded.

When making an estimate of the percentage of fish being retained, avoid basing your estimate on relative *numbers* of fish. Remember that this figure is a percentage of *weight*. If small fish are being discarded and the larger ones retained, the weight percentage of retained fish is greater than their percentage by number.

If a c/p vessel puts up product but days later discards it overboard in favor of a more valuable product (high grading), it is not necessary to try to revise earlier figures for percent retained of the discarded product. Just make a note of it in your daily log.

Catcher-only Trawlers: Observers on catcher-only vessels must consider everything that is delivered to the processor as retained, regardless of whether the processor later discards it, or gives it back to the catcher to take back out to sea for discard. With that distinction, the methods are the same as a catcher-processor trawler.

THE PROGRAM TO REDUCE PROHIBITED SPECIES BYCATCH

What It Is: The "Program To Reduce Prohibited Species Bycatch" was designed by the trawl industry and the NMFS to encourage trawl vessels with high bycatch rates of prohibited species to change their fishing strategies to reduce the incidental catch of specific prohibited species. The program which is also known as the Vessel Incentive Program (VIP) establishes bycatch standards for all trawl fisheries in the Bering Sea and the Gulf of Alaska. Under the recommendations of the North Pacific Fishery Management Council, the NMFS enacts catch rate standards by target fisheries for certain prohibited species groups: weight or number of halibut and red king crab per metric ton of allocated catch. Vessels that exceed the set bycatch standards for the target fisheries in which they participate may be subject to penalties for not taking appropriate measures to reduce their bycatch rates.

all the regular sampling options are available to you. ***All trawler observers must follow the Random Sample Table in choosing hauls to sample*** and you need to document in your logbook exactly which hauls you sampled and your reason for skipping any haul. Please send accurate and timely catch messages to NMFS in Seattle. If for some reason there was no sampling for a week, send us a message about that.

Document thoroughly in your logbook any hindrance to your sampling. Watch for possible pre-sorting of the catch by the crew before you are able to collect samples. If you encounter sampling interference, document time and date, who was involved, what happened, how many animals were pre-sorted, what you did, what they said, etc. for ***each*** incident. Direct quotes are preferable (consult the "If Presorting Occurs" and "Steps To Take If You Suspect A Violation" sections). Presorting before an observer has a chance to sample is a fishery violation and you should speak to the captain about ways you can get unsorted catch to sample with the least hindrance to fishing operations. Continue to sample and try to resolve any problem by speaking to vessel personnel or with the skipper. If problems continue, notify NMFS in Seattle or one of the NMFS field offices immediately, by any means possible. (For contact numbers, refer to 6 - 2.)

Special Note: Vessel personnel may want you to calculate the prohibited species bycatch rates for them. The vessels may obtain the information necessary to calculate their own rates from you, but the vessels are responsible for monitoring their own activities. Because of the legalities involved and lack of detail you are provided with regarding the computation of the rates, observers must not put themselves in the position of calculating rates for the vessel.

Some fleets hire a data coordinator who is stationed on a designated ship or at the company office who calculates the prohibited species bycatch rates for individual vessels. NMFS highly encourages vessels to take the responsibility of monitoring their own activities. We ask that you cooperate by providing the requested data to the vessel personnel, not on demand, but as possible, in a timely manner. ***Remember however, do not calculate rates for the vessel.*** If the vessel personnel have questions about the VIP program, the bycatch rates, or how to calculate their own rates, it is best to refer them to the individuals most informed about their specific questions. You will find those numbers listed on the last page of the fishing regulations section. Since regulations can change after your deployment and we are unable to keep you informed of the changes, we ask that you do not attempt to provide advice to the vessel.

targeting pollock using a pelagic trawl, record the width (or length for king crab) of *all species of crab* that occur in your composition sample on 7US. For Korean horsehair crab and box crab measure the width at the widest point of the carapace. Crab species other than king or Tanner crab do not have to be sexed and the presence of eggs should be listed as "U."

Collecting Data From Halibut

Numbers-- On Form 3US record the number of halibut that occurred in your species composition sample. When the halibut entered on 3US are not the same fish or number of fish as recorded on 7US (Length Frequency of Measured Species), please explain the data in the space for comments on Form 3US.

Weight -- Individual weights are not necessary, but you must obtain the total weight of halibut that occurred in the composition sample. Halibut too large to be weighed can be just measured and sometimes the length must be visually estimated. Look up lengths of measured or estimated fish in the halibut length-weight table (see 3 - 39 and the Appendix) to obtain corresponding weights. The total weight of halibut on 3US may then include these table weights of measured fish summed with scale weights of the halibut that could be weighed.

Weighing Preferences:

1st -- halibut should be actually weighed,
2nd -- actual measurement and weight from the Length/Weight Table
3rd -- estimated length and weight from the Length/Weight Table
OR
3rd -- sample for average weight and apply to a count of halibut when ones counted are all of a similar size.

Do not sex halibut, not even the dead ones. On Form 3US, leave the column for sex blank. On Form 7US, record the viability categories in the column for sex.

Length and Viability data are usually taken from the same fish. Viability is an appraisal of the condition of halibut - excellent ("E"), poor ("P"), dead ("D"), or unknown ("U") when condition was not appraised. Measure lengths and determine viability only of halibut from hauls sampled for composition.

Do not guess the condition of halibut you do not have in hand and personally examine. Halibut of 50 cm or more are very sturdy fish and one seen "swimming vigorously away" may still have had a substantial injury and should have been listed as in poor condition.

Measure and record fish lengths to the nearest whole centimeter. Do not lay a measuring tape from the deck, at one end, up and over the body and back to the deck. Instead take a straight-line measurement by laying the tape measure on the deck and putting the fish on top of it. Record length frequencies of only actually measured fish by condition category on Form 7US.

Halibut L/V Sampling Guidelines:

Measure lengths and determine viability only of halibut from hauls sampled for composition.

Do not guess the condition of halibut that you do not have in hand and personally examine.

Assess halibut condition just before they drop back into the water under normal handling conditions.

Halibut measured and examined must be collected randomly or from a systematically random sample of the entire catch.

RELATIONSHIP OF HALIBUT LENGTHS TO WEIGHT (LIVE WEIGHT)

Length (cm)	Kilograms	Length (cm)	Kilograms	Length (cm)	Kilograms
10	.01	55	1.82	100	12.64
11	.01	56	1.93	101	13.05
12	.01	57	2.05	102	13.47
13	.02	58	2.16	103	13.91
14	.02	59	2.29	104	14.35
15	.03	60	2.41	105	14.80
16	.03	61	2.55	106	15.26
17	.04	62	2.69	107	15.73
18	.05	63	2.83	108	16.21
19	.06	64	2.98	109	16.71
20	.07	65	3.13	110	17.21
21	.08	66	3.29	111	17.72
22	.09	67	3.45	112	18.24
23	.11	68	3.62	113	18.77
24	.12	69	3.80	114	19.32
25	.14	70	3.98	115	19.87
26	.16	71	4.17	116	20.44
27	.18	72	4.36	117	21.01
28	.21	73	4.56	118	21.60
29	.23	74	4.76	119	22.20
30	.26	75	4.98	120	22.81
31	.28	76	5.19	121	23.43
32	.32	77	5.42	122	24.07
33	.35	78	5.65	123	24.71
34	.38	79	5.89	124	25.37
35	.42	80	6.13	125	26.04
36	.46	81	6.38	126	26.72
37	.50	82	6.64	127	27.41
38	.55	83	6.91	128	28.12
39	.60	84	7.18	129	28.83
40	.65	85	7.46	130	29.56
41	.72	86	7.75	131	30.31
42	.76	87	8.05	132	31.06
43	.82	88	8.35	133	31.83
44	.88	89	8.66	134	32.61
45	.95	90	8.98	135	33.41
46	1.02	91	9.31	136	34.22
47	1.10	92	9.64	137	35.04
48	1.17	93	9.99	138	35.87
49	1.25	94	10.34	139	36.72
50	1.34	95	10.70	140	37.59
51	1.43	96	11.07	141	38.46
52	1.52	97	11.45	142	39.35
53	1.62	98	11.83	143	40.26
54	1.72	99	12.23	144	41.18
				145	42.11

SUMMARY OF SAMPLING DUTIES FOR PROHIBITED SPECIES

SALMON

INSIDE SAMPLE
Check for tags or fin clips; No adipose? = take snout.
I.D., weigh and sex --- 3US
Measure --- 7US
Take scale samples (until 20/spp. collected) --- 9US

OUTSIDE SAMPLE
Can collect scales for i.d.
confirmation only --- 9US
Check for tags. If present, take info.
Use for special project?

HALIBUT

INSIDE SAMPLE
I.D., weigh if possible, do not sex --- 3US
Measure, check viability at point of discard --- 7US
Check for plastic tags --- Tagged Fish Form

OUTSIDE SAMPLE
Can measure and check viability
(random collection, only from haul sampled for composition) --- 7US
Check for tags on any fish

KING AND TANNER CRAB

INSIDE SAMPLE
I.D., weigh and sex --- 3US
Measure, check females for eggs --- 7US
If vessel is targeting pelagic pollock in BSAI or GOA, measure all spp. of crab in sample --- 7US

OUTSIDE SAMPLE
BSAI flatfish target - watch for hauls with > 100 king crab. If so, collect 50 - 100, measure, sex, look for eggs --- 7US

HERRING

INSIDE SAMPLE
I.D. and weigh, no sex ---3US

OUTSIDE SAMPLE
No sampling

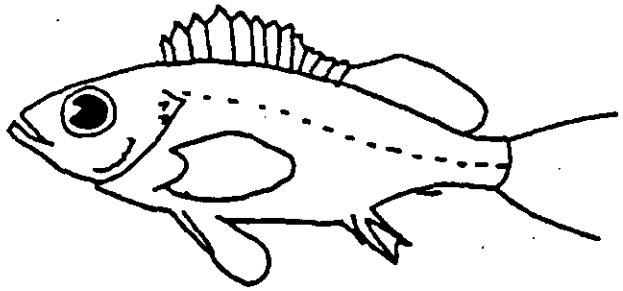
ROCKFISH SPECIES DESCRIPTION FORM

Species Name: _____
Date of Capture: _____
Haul or Delivery Number: _____
Position of Capture (Lat. & Long.): _____
Depth of Capture: _____
Length: _____
Weight: _____
Was an example of this species brought back? Yes No
(Note: If this fish represents a range or depth extension or a record in size, bring it back for species verification.)

Remember to start by checking the rockfish section of the "Species Identification Manual" to determine whether it is of the genus Sebastes, Sebastolobus, or Adelosebastes.

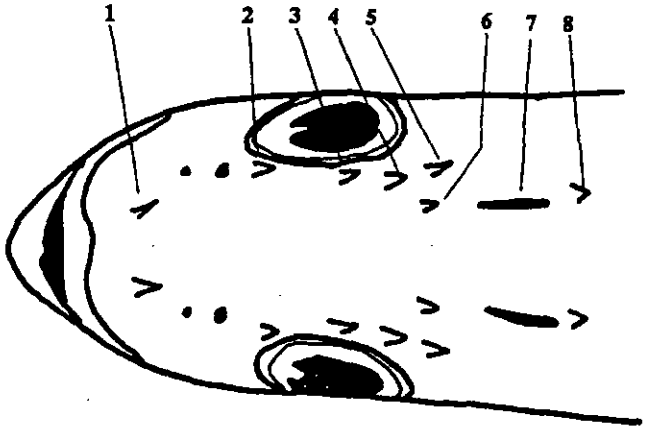
What color category of Hitz's would you place it in? _____

Please sketch any pattern, stripes, freckles, bars, light or dark areas etc. Draw the shape of the anal fin and include any symphyseal knob. Study your specimen closely.



Circle the pairs of head spines your specimen has on the diagram below. Remember that all members of a species do not have exactly the same spine distribution that is depicted in Hitz. Also, remember that some spines are very difficult to find.

Strength of Head Spines - Circle: WEAK or STRONG



FLATFISH SPECIES DESCRIPTION FORM

Species Name: _____
Date of Capture: _____
Haul or Delivery Number: _____
Position of Capture (Lat. & Long.): _____
Depth of Capture: _____
Length: _____
Weight: _____

Was an example of this species brought back? Yes No
(Note: If this fish represents a range or depth extension, or a record in size, bring it back for species verification.)

Is the flatfish right eyed or left eyed? _____

Note: Right-eyed fish belong to the family Pleuronectidae and left-eyed fish belong the family Bothidae. However, remember that not all Pleuronectidae have their eyes on the right side, unusual individuals may have their eyes on the left.

Please answer the following questions: (Hint - check the illustrations on the first page of the key to make sure you are taking measurements in the same way that the key asks you to.)

What is the general tail shape?

Does the fish have an accessory dorsal branch (ADB) of the lateral line?
___ Yes (If so, remember to sketch it in on the illustration on the back.)
___ No

Does the eye protrude over the profile of the head such that its edge can be seen from the blind side? _
_ Yes __ No

Relative to the lower eye, the maxillary ends:
__ forward of orbit
__ below anterior part of orbit
__ below pupil of eye
__ below posterior part of orbit
__ below posterior margin of orbit or beyond

MISC. SPECIES DESCRIPTION FORM

Species Name: _____
Date of Capture: _____
Haul or Delivery Number: _____
Position of Capture (Lat. & Long.): _____
Depth of Capture: _____
Length: _____
Weight: _____

Was an example of this species brought back? Yes No
(Note: If this animal represents a range or depth extension or a record in size, bring it back for species verification.)

This form is to be filled out for the first sighting of all fish (except rockfish and flatfish which have their own description forms) and invertebrates keyed out to family or to species. For fish, include counts of all fin rays, standard body measurements, (fork length, head length, snout length, and caudal peduncle length) and any other pertinent measurements.

Examine the fish and record the following meristic characters: (Note: There is variability in fish of the same species, and even between counts on different sides of the same fish. Therefore, counts on both sides might help.)

Dorsal fin spines:_____ _____ _____
Dorsal fin rays:_____ _____ _____
Anal fin rays:_____ _____
Anal fin spines_____ _____
Pectoral fin rays:_____
Pelvic fin spines:_____
Pelvic fin rays:_____

Gill rakers--upper arm:_____
Gill rakers--lower arm:_____
Gill rakers total:_____

List below, the features that led you to your family, genus or species conclusion. Be detailed in your description and on the back of this form, make a sketch showing the main features.
If you are not absolutely sure of your identification, bring a specimen back or at least take a photograph of it.

Comments: _____

_____

_____

_____

Draw Specimen on Reverse Side

SPECIES CODE LIST

CODE	COMMON NAME	SCIENTIFIC NAME
106	ALASKA PLAICE	PLEURONECTES QUADRITUBERCULATUS
450	ALLIGATORFISH, (POACHER) - UNIDENT.	AGONIDAE
610	ANCHOVY, NORTHERN	ENGRAULIS MORDAX
55	ANEMONE, SEA - UNIDENT.	ACTINIARIA
620	ARGENTINE - UNIDENT.	ARGENTINIDAE
43	ASCIDIANS, SEA SQUIRT, TUNICATE	UROCHORDATA
204	ATKA MACKEREL	PLEUROGRAMMUS MONOPTERYGIUS
48	BARNACLES	CIRRIPEDIA
795	BARRACUDA, PACIFIC (CALIFORNIA)	SPHYRAENA ARGENTEA
770	BARRACUDINA - UNIDENT.	PARALEPIDIDAE
622	BARRELEYE or SPOOKFISH - UNIDENT.	OPISTHOPROCTIDAE
289	BIGSCALE, (MELAMPHID) - UNIDENT.	MELAMPHAEIDAE
	BIRDS - Refer to listing for this group following the fish codes	
618	BLACKSMELT - UNIDENT.	BATHYLAGIDAE
260	BLENNY - UNIDENT.	PHOLIDAE, STICHAEIDAE
302	BOCACCIO	SEBASTES PAUCISPINIS
27	BRACHIOPOD, LAMPSHELL	BRACHYOPODA
54	BRISTLEWORM, LEECH, POLYCHAETES	ANNELIDA
32	BRYOZOANS	
604	CAPELIN	MALLOTUS VILLOSUS
44	CHITON - UNIDENT.	AMPHINEURA
199	CHUB MACKEREL	SCOMBER JAPONICUS
29	CLAMS MUSSELS OYSTERS SCALLOPS	PELECYPODA
211	COD, ARCTIC (RACE)	BOREOGADUS SAIDA
203	COD, BLACK (SABLEFISH)	ANOPLOPOMA FIMBRIA
202	COD, PACIFIC	GADUS MACROCEPHALUS
208	COD, SAFFRON	ELEGINUS GRACILIS
214	CODLING - UNIDENT.	MORIDAE
32	CORALS	
1	CRAB - FAMILY, GENUS UNKNOWN	
6	CRAB, BLUE KING	PARALITHODES PLATYPUS
11	CRAB, BOX	LOPHOLITHODES FORAMINATUS
8	CRAB, BROWN KING	LITHODES AEQUISPINA
49	CRAB, CANCER	CANCER OREGONENSIS
16	CRAB, COUESI KING	LITHODES COUESI
39	CRAB, DECORATOR	OREGONIA GRACILIS
12	CRAB, DUNGENESS	CANCER MAGISTER
15	CRAB, HERMIT - UNIDENT.	PAGURIDAE
2	CRAB, KING CRAB - UNIDENT.	LITHODES & PARALITHODES
7	CRAB, KOREAN HORSEHAIR	ERIMACRUS ISENBECKII
37	CRAB, LYRE -- ROUNDED SPINED	HYAS COARCTATUS
9	CRAB, LYRE -- SHARP SPINED	HYAS LYRATUS

418	IRISH LORD - UNIDENT.	HEMILEPIDOTUS, SP.
33	ISOPOD	ISOPODA
207	JACK MACKEREL	TRACHURUS SYMMETRICUS
35	JELLYFISH - UNIDENT.	SCYPHOZOA
2	KING CRAB - UNIDENT.	LITHODES AND PARALITHODES SP.
608	KING-OF-THE-SALMON, (RIBBONFISH)	TRACHIPTERUS ALTIVELIS
700	LAMPFISH - UNIDENT.	MYCTOPHIDAE
75	LAMPREY - UNIDENT.	PETROMYZONTIDAE
785	LANCETFISH, LONGNOSE	ALEPISAURUS FEROX
700	LANTERNFISH - UNIDENT.	MYCTOPHIDAE
54	LEECH, BRISTLEWORM, POLYCHAETES	ANNELIDA
45	LIMPET - UNIDENT.	
603	LINGCOD	OPHIODON ELONGATUS
14	LITHODID - UNIDENT. (RACE)	LITHODID CRAB UNIDENT.
809	LOOSEJAW, SHINING	ARISTOSTOMIAS SCINTILLANS
525	LUMPSUCKER - UNIDENT.	CYCLOPTERIDAE
204	MACKEREL, ATKA	PLEUROGRAMMUS MONOPTERYGIUS
199	MACKEREL, CHUB (PACIFIC)	SCOMBER JAPONICUS
207	MACKEREL, JACK	TRACHURUS SYMMETRICUS
774	MANEFISH	CARISTIUS MACROPUS
903	MARINE MAMMAL (OR PARTS OF) UNIDENT.	
776	MEDUSAFISH	ICICHTHYS LOCKINGTONI
289	MELAMPHID - UNIDENT.	MELAMPHAEIDAE
710	MIDSHIPMAN, PLAINFIN	PORICHTHYS NOTATUS
900	MISC. - UNIDENT.	(ROCKS, MUD, GARBAGE, ETC)
29	MUSSELS, CLAMS, OYSTERS, SCALLOPS	PELECYPODA
25	NUDIBRANCH	NUDIBRANCHIATA
715	OARFISH	REGALECUS GLESNE
810	OCEAN SUNFISH	MOLA
60	OCTOPUS - UNIDENT.	OCTOPODA
61	OCTOPUS, PELAGIC	VAMPYROMORPHA
297	OPAH	LAMPRIS GUTTATUS (L. REGIOUS)
295	OREO, OXEYE	ALLOCYTTUS FOLLETTI
29	OYSTERS, CLAMS, MUSSELS, SCALLOPS	PELECYPODA
301	PACIFIC OCEAN PERCH	SEBASTES ALUTUS
762	PAPERBONES, SCALEY (WEARYFISH) - UNIDENT.	NOTOSUDIDAE
681	PEARLEYES - UNIDENT.	SCOPELARCHIDAE
450	POACHER - UNIDENT.	AGONIDAE
201	POLLOCK, WALLEYE	THERAGRA CHALCOGRAMMA
54	POLYCHAETE, BRISTLEWORM, LEECH	ANNELIDA
765	POMFRET - UNIDENT.	BRAMIDAE
790	POMPANO, PACIFIC	PEPRILUS SIMILLIMUS
750	PRICKLEBACK - UNIDENT.	STICHAEIDAE
205	PROWFISH	ZAPRORA SILENUS
280	RAGFISH	ICOSTEUS AENIGMATICUS
99	RATFISH, SPOTTED	HYDROLAGUS COLLIEI

320	ROCKFISH, YELLOWMOUTH	SEBASTES REEDI
321	ROCKFISH, YELLOWTAIL	SEBASTES FLAVIDUS
240	RONQUIL - UNIDENT.	BATHYMASTERIDAE
200	ROUNDFISH - UNIDENT.	
203	SABLEFISH, (BLACK COD)	ANOPLOPOMA FIMBRIA
220	SALMON - UNIDENT.	ONCORHYNCHUS, SP.
221	SALMON, CHUM (DOG)	ONCORHYNCHUS KETA
222	SALMON, KING (CHINOOK)	ONCORHYNCHUS TSHAWYTSCHA
225	SALMON, PINK (HUMPBACK)	ONCORHYNCHUS GORBUSCHA
224	SALMON, RED (SOCKEYE)	ONCORHYNCHUS NERKA
223	SALMON, SILVER (COHO)	ONCORHYNCHUS KISUTCH
40	SAND DOLLARS	ECHINOIDEA
670	SAND LANCE, PACIFIC	AMMODYTES HEXAPTERUS
136	SANDDAB - UNIDENT.	BOTHIDAE
144	SANDDAB, LONGHEAD	LIMANDA PROBOSCIDEA
137	SANDDAB, PACIFIC	CITHARICHTHYS SORDIDUS
239	SANDFISH	TRICHODON
614	SARDINE, PACIFIC	SARDINOPS SAGAX CAERULENS
607	SAURY, PACIFIC	COLOLABIS SAIRA
660	SCABBARDFISH,(CUTLASSFISH)-UNIDENT.	TRICHIURIDAE
29	SCALLOPS, CLAMS, MUSSELS, OYSTERS	PELECYPODA
400	SCULPIN - UNIDENT.	COTTIDAE
431	SCULPIN, GYMNOCANTHUS - UNIDENT.	GYMNOCANTHUS, SP.
418	SCULPIN, IRISH LORD - UNIDENT.	HEMILEPIDOTUS, SP.
440	SCULPIN, MYOXOCEPHALUS SP.	MYOXOCEPHALUS SP.
433	SCULPIN, TRIGLOPS - UNIDENT.	TRIGLOPS SP.

Note: Many other genera and species of sculpins are present. Group these others under sculpin unidentified.

55	SEA ANEMONE - UNIDENT.	ACTINIARIA
41	SEA CUCUMBER - UNIDENT.	HOLOTHURIOIDEA
689	SEA DEVIL - UNIDENT.	CERATIIDAE
54	SEA MOUSE, BRISTLEWORM, LEECH	ANNELIDA
43	SEA ONIONS - UNIDENT.	UROCHORDATA
58	SEA PEN, SEA WHIP - UNIDENT.	PENNATULA
43	SEA POTATO - UNIDENT.	UROCHORDATA
25	SEA SLUG, - UNIDENT.	NUDIBRANCHIATA
56	SEA SPIDER - UNIDENT.	PYCNOGANIDA
43	SEA SQUIRTS, ONIONS, POTATOES, TUNICATES	UROCHORDATA
40	SEA URCHINS	ECHINOIDEA
58	SEA WHIP, SEA PEN - UNIDENT.	PENNATULA
54	SEA WORMS (POLYCHAETES)	ANNELIDA
550	SEABASS - UNIDENT.	SCIAENIDAE
	SEABIRDS - Refer to listing for this group following the fish codes	
242	SEARCHER	BATHYMASTER SIGNATUS
900	SEAWEED	MISC. ITEMS
606	SHAD, AMERICAN	ALOSA SAPIDISSIMA

20	STARFISH - UNIDENT.	ASTEROIDEA
21	STARFISH, BASKET	GORGONOCEPHALUS
22	STARFISH, BRITTLE	OPHIUROIDEA
24	STARFISH, SUNSTAR	SOLASTER SP.
226	STEELHEAD	SALMO GAIRDNERI
230	STURGEON - UNIDENT.	ACIPENSERIDAE
3	TANNER CRAB - UNIDENT.	CHIONOECETES SP.
209	TOMCOD, PACIFIC	MICROGADUS PROXIMUS
113	TONGUEFISH, CALIFORNIA	SYMPHURUS ATRICAUDA
227	TROUT, CUTTHROAT (SEA RUN)	SALMO CLARKI
807	TUBESHOULDER - UNIDENT.	SEARSIIDAE
43	TUNICATES, ASCIDIANS, SEA SQUIRTS	UROCHORDATA
102	TURBOT, GREENLAND (HALIBUT)	REINHARDTIUS HIPPOGLOSSOIDES
143	TURBOT/ KAM/ ARROW - UNIDENT.	
805	VIPERFISH - UNIDENT.	CHAULIODONTIDAE
757	WARBONNET, DECORATED	CHIROLOPHIS DECORATUS
899	WASTE FISH	
762	WEARYFISH, (PAPERBONES) - UNIDENT.	NOTOSUDIDAE
779	WOLFFISH, WOLF-EEL - UNIDENT.	ANARHICHADIDAE
780	WOLF-EEL	ANARRHICHTHYS OCELLATUS
781	WOLFFISH, BERING	ANARHICHAS ORIENTALIS
760	WRYMOUTH, GIANT	DELOLEPIS GIGANTEA
783	WRYMOUTH, DWARF	LYCONECTES ALEUTENSIS
999	Z SUMMATION LINE	CODE FOR FORM 3US ONLY

SEABIRDS - CODE LIST

852	ALBATROSS, BLACK-FOOTED	DIOMEDEA NIGRIPES
851	ALBATROSS, LAYSAN	DIOMEDEA IMMUTABILIS
850	ALBATROSS, SHORT-TAILED *	DIOMEDEA ALBATRUS
849	ALBATROSS - UNIDENT	DIOMEDEIDAE SPP.
883	ALCID - UNIDENT.	ALCIDAE SPP.
893	AUKLET/MURRELET - UNIDENT	AUKLET/MURRELET SPP.
895	AUKLET, RHINOCEROUS	CERORHINCA MONCERATA
998	BIRD - UNIDENT.	AVES
861	CORMORANT - UNIDENT.	PHALACROCORACIDAE SPP.
866	EIDER, COMMON	SOMATERIA MOLLISSIMA
863	EIDER, KING	SOMATERIA SPECTABILIS
864	EIDER, SPECTACLED **	SOMATERIA FISCHERI
865	EIDER, STELLER'S **	POLYSTICTA STELLERI
854	FULMAR, NORTHERN	FULMARUS GLACIALIS
846	GREBE - UNIDENT.	PODICIPEDIDAE
884	GUILLEMOT - UNIDENT.	CEPPHUS SPP.
878	GULL, GLAUCUS	LARUS HYUPERBOREUS

Cruise	Vessel Code	Year	Month	Day
4011	A110	97	09	01

FORM 7US-LENGTH FREQUENCY OF MEASURED SPECIES
(includes halibut, salmon, and crab measurments)

SIZE GROUPS: Fish by 1cm. Crabs by 5mm

M = male
F = female
U = unknown sex

Species name	Species code	Set/haul no.	Sex	Eggs?	Keypunch check	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.
Halibut	101	48	P		120	58	1	60	1										
Halibut	101	48	D		47	46	1												
Bairdi Tanner	4	49	M		301	48	2	53	1	58	3	63	1	68	4				
↓	4	↓	F	N	329	43	1	53	2	63	1	78	3	83	2				
Bairdi T.	4		F	Y	237	68	1	73	1	93	1								
Opilio Tanner	5		M		247	73	1	83	1	88	1								
Opilio	5		F	N	79	78	1												
Halibut	101		E		471	42	1	50	1	53	1	54	2	57	1	60	1	147	1
↓	101	↓	P		161	50	2	52	1	55	1								
Halibut	101	49	D		49	48	1												
Chum Salmon	221	50	M		50	49	1												
Pollock	201	50	M		327	41	1	42	1	43	3	44	2	45	2	46	5	47	5
↓	↓	50	M		270	48	3	49	5	51	3	52	3	54	2				
		50	F		320	32	1	44	1	45	1	46	2	47	2	48	1	49	1
		50	F		222	50	1	51	2	52	1	64	1						
		51	M		343	41	2	42	4	44	4	45	2	46	6	47	6	48	6
		51	M		415	49	6	50	2	53	6	54	6	57	2	60	4	64	2
↓	↓	51	F		379	46	8	47	2	48	8	49	2	50	4	51	4	52	8
Pollock	201	51	F		168	53	2	54	2	55	2								

entries in this column: "Y" for yes, eggs were present, "N" for no, eggs were not present, and "U" for unknown/unidentified--eggs were not checked for. The column must have an entry if crab measurements are recorded.

X female

8. In the **"keypunch check"** columns, simply add all of the numbers in the row (size group and frequencies together) and enter the sum. Be sure to check your work by adding it again to verify your sum. The editing program will also sum the numbers in the line and compare it with your sum. This is our means of checking for correct keypunching of the data.

9. **Size groups** are the length measurements; rounded to the nearest whole centimeter for fish and in 5 millimeter increments for crab (1-5 mm = 3; 6-0 mm = 8). Record the size groupings in the shaded columns in ascending order.

10. **Frequency** is the number observed in each size group. **Include a size group only if there is a frequency of one or more.** Record sequential data horizontally across the form. **List lengths from the smallest to the largest within a haul/species/sex group.**

11. Start a new row each time there is a change in sex or when there are more than seven size categories in a group. Skip a line when there is a change in haul number or species unless it means going to a new page.

12. Leading zeros should appear in the month, and day only, as needed. No leading zeros should be written in species code, haul number, size, or frequency columns. To indicate the repetition of a number or letter, such as species code, haul, or sex, draw brackets and arrows as shown in the example form. Do not use ditto marks in key punch columns.

LENGTH FREQUENCIES OF PROHIBITED SPECIES

All trawler observers should take sexed length frequencies of all salmon, king and Tanner crab and lengths of halibut found in the prohibited species sample if it is possible to do so. Fish and crab must be actually measured for length and must be from a random or systematically random sample. Measuring the ones in your composition sample usually ensures they were collected properly.

Measuring salmon from outside of your composition sample is not necessary or desirable unless you need their scales to confirm species identification or have been given a special project on salmon. If you have length data from salmon outside your composition sample, note the collection method in your daily log and alert your debriefing interviewer to all instances of these data. Halibut measurements, on the other hand, may be taken from fish outside your sample. Lengths and viability of halibut are normally sampled at the same time. It may be inappropriate to use halibut in your sample if that means determining their condition at a point sooner than where they normally go over the side. *Halibut length and viability data may be taken from fish outside of the composition sample but must be from a haul sampled for composition.*

special project instructions carefully to determine if the data are correlated. The relation of otolith and scale collections to length data is discussed on 4 - 17.

If your vessel switches target species, either continue to measure the initial target species or make one change to the new target. Do not take small samples (only a couple days of data) from multiple species! Try to stay with the same species for all length data taken on one boat. You may choose a new sampling species for length frequencies when you begin work aboard a different boat. If your composition sample does not contain enough fish for a good length frequency sample, gather some from outside the composition sample or from another, un-sampled haul or set. Collect all, or every third, sample species fish passing by you over a period of time, or use some other method to collect an unbiased sample from a larger portion of the catch.

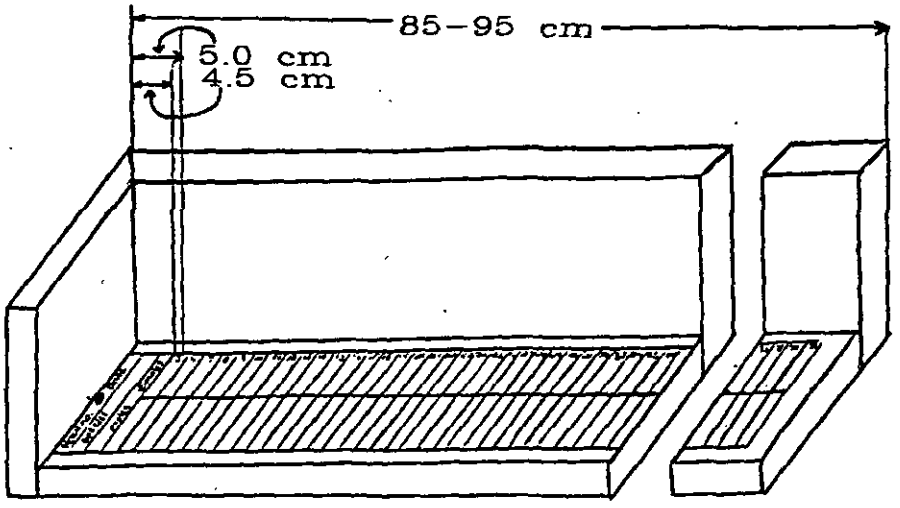
Regardless of a special project assignment, all observers should measure approximately 150 lengths from the one sampling species each day. Taking 150 length measurements each day may be too difficult if the fish are large and hard to handle, or if sampling conditions are poor. In this case do as many length measurements as possible, up to 150 per day. Inform your debriefing interviewer about situations which affected your ability to sample.

Preferably, lengths should be taken from **several** hauls or sets per day to ensure that measurements are representative and to spread out your work. However, each day's length measurements may all be taken during one sample period and *it is preferred but not necessary* that the fish are from a catch also sampled for composition. Fish measured for length frequency may be taken from a haul or set not sampled for composition.

Length frequencies are taken from fish that were collected in a random, non-size selective manner *usually* during your species composition sampling. If you wanted to sample approximately 50 fish for length frequencies and the sample you set aside only has 46 fish, don't bother collecting another four fish. It is too easy to bias your sample by "picking" them out in an inappropriate manner. Sex and group the fish into baskets by sex (for method, refer to "Sexing Fish" in the Appendix). If you are unable to sex some fish (usually the small ones), separate them into a third group to measure. Their lengths will also need to be recorded and their sex written in as "U" (unidentified).

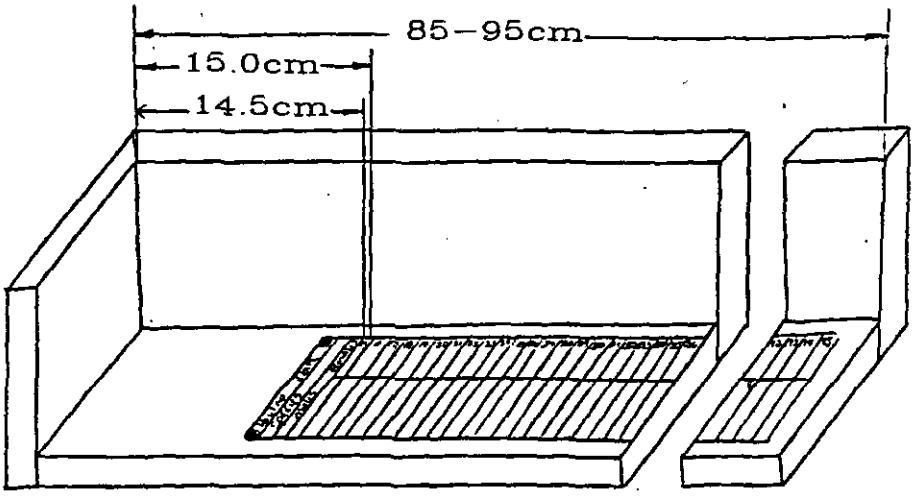
When fishing for Pacific cod, the fish are usually bled or headed and gutted by the crew. If the fish are frozen or iced whole, and with some methods of bleeding, the observer cannot sex the fish without damaging significant amounts of product. It is permissible to take un-sexed lengths when necessary. *Sexed length data are more useful and so are preferred but if this cannot be done, un-sexed lengths are better than no length data.*

If the fish are being headed and gutted, try working with the crew, by taking the length measurement first then examining the viscera visible when the fish is gutted by a processor. Another alternative is to ask the crew to show you how to make the pectoral cut. In general, make a diagonal dorsoventral cut from behind the head to behind the pectoral fin, then angle the knife forward to the isthmus. Make the same cut on the other side. Another method is to just make a ventral cut from the pectoral fin anteriorly to the isthmus and back to the other pectoral fin. Then you can reach in and pull out the gonad or peer into the cavity to see the gonad and determine the sex. Pass the fish on the



Measuring strip set for most fish species.

Figure 1



Strip offset to measure larger fish.

Figure 2

AREA 521 **FORM 9US - BIOLOGICAL SAMPLING FORM** Page 2 of ___

Cruise no.	Vessel code	Date			Species name	Species code	Specimen type	Sampling system
		Year	Mo.	Day				
1 2 3 4 5	6 7 8 9	10 11	12 13	14 15		16 -18	20 -21	22 - 23
		94	09	17	KING SALMON	222	2	2

Total no. of specimens ____

Catalogue date ____

	Set/haul number	Specimen number	Sex	Length (cm)	Weight (kg)	Form 7	Maturity stage	Notes	Age	REMARKS
	25 26 27	28 29 30	31	32 33 34	35 36 37 38 39	41	42 43	44 45	47 48 49	
1	103	4	M	56	2.00	Y				
2		5	M	58	3.10					
3		6	M	55	3.10					
* 4		7	M	67	4.40					
5		8	F	68	3.00					
6	↓	9	F	67	3.10	↓				
7	103	10	F	67	3.20	Y				
8										
9										*Specimen #7: tissue collected.
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										
36										
37										

and a tally sheet is used to ensure that age structures are obtained from no more than 5 fish per cm and sex group.

2--random--In this system, although the fish may be from your length frequency sample, no stratification is made by size and sex. Salmon scale collection is an example of this sampling system because scales are taken from all of the salmon in your composition sample. If a species is too numerous, a random subsample (such as every third fish) is also coded 2, specifying a random sampling system.

3--systematic--Fish are chosen from the length frequency sample in a random fashion (as in 2 above), but the haul/set to be sampled is selected in a "systematic" fashion. For example, the haul closest to the cumulative 200, 400, 600 metric ton catch may be chosen to be sampled.

8. **Leave "Total no. of specimens" and "Catalogue date" blank.** This information will be filled in by the age readers processing your collection.

9. On trawlers record the haul number in columns 25-27; on longline or pot vessels record the set number in those columns. Note that data from the same species but from several hauls or sets can be recorded per sheet as long as the hauls correspond to the date and NMFS area written on the top of the page. Go to a new side of the form for a new date or area, and **go to a different set of Form 9's for a different species.**

10. The specimen number is the identifying number on the otolith vial, scale envelope, or other container with the specimen. There should not be any duplicate specimen numbers within a species. The specimen numbers should be listed in sequence. (We want to avoid having specimen containers filled at random.) Salmon scale samples are numbered sequentially by species and the data are recorded on separate sets of Form 9US by species.

11. If you board another ship before completing a collection, you can continue with the same sequence of specimen numbers, but keep separate sets of form 9US for the two different vessels.

12. It is best if the specimen data are grouped by sex on the form. Record the sex of the fish using "M", "F", and "U" notation (M = male; F = female; U = unidentified).

13. **Decimal Places:** Record the length of the fish to the nearest whole centimeter. The weight must be filled out to two decimal places. Add trailing zeros where necessary.

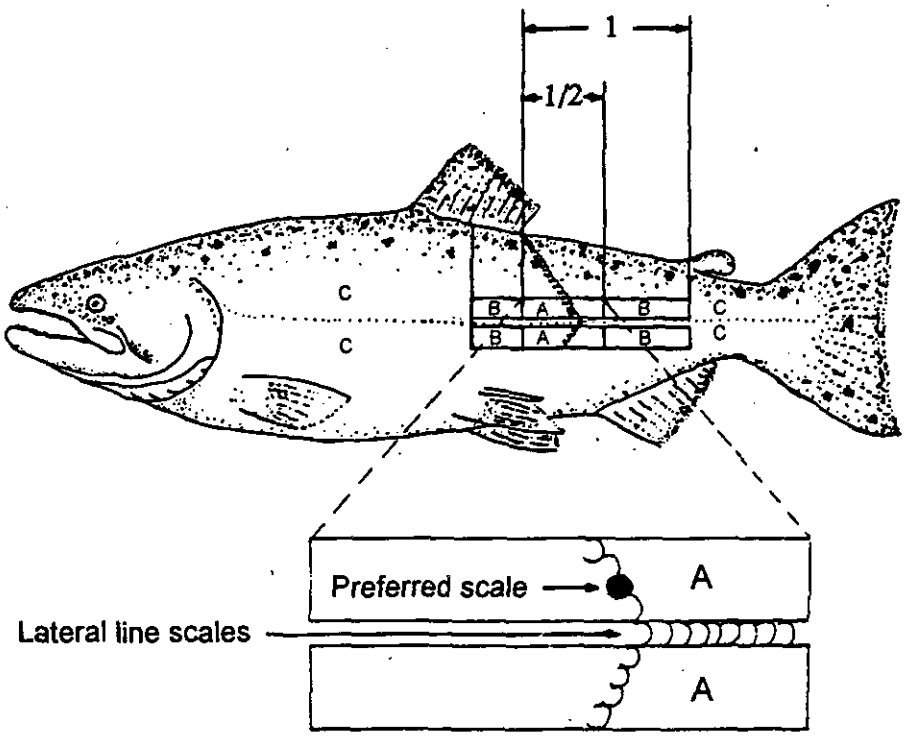
14. If you recorded the length of the fish on the Form 7US (which should almost always be the case unless you picked this particular fish from someplace other than your length frequency sample), record a "Y" for "Yes" in column 41. Otherwise, write "N".

15. If you are requested to record maturity stage, record this in columns 42-43. An appropriate maturity scale for the species would need to be provided to you.

4. Wipe off, inside the envelope or vial, 15 to 20 scales that adhere to the instrument. Collect a minimum of five scales. Ensure that samples are clearly labeled and all pertinent information is recorded on the plastic sheets, if necessary.

5. Remove excess scales from the instrument before sampling the next fish.

It is recognized that strict adherence to the methods will sometimes be impossible or impractical. Keep a record of the deviations from instructions so that the effect can be evaluated.



SALMON - Follow the diagonal scale row from the posterior insertion of the dorsal fin to the lateral line of either side. Two scale rows above the lateral line(on the diagonal) is the preferred scale.

MARINE MAMMALS

FORM 10US - MARINE MAMMAL INCIDENTAL CATCH DATA

The Form 10US has two parts. The 10A side is filled out by all vessel observers for any marine mammal interaction or catch (whole or parts of). Record all incidents whether they occurred in monitored hauls or not. Interactions include humans intentionally feeding animals and animals preying on catch prior to landing (not discards). Include any harassment or any attempts to deter marine mammals from preying upon the catch. Which catches (randomly selected) were monitored for marine mammal interactions is recorded on the 1US and 2US forms.

The 10B, back side of the form, is for recording any specimen data taken from incidents detailed on the 10A. Specimen information might include sex, and/or length, if photos were taken and if teeth were collected. If none of the above were taken, no entries on 10B are needed. Conversely, if more than one animal was caught, you may have two or more records on 10B for one incident on 10A.

When a staff member reviews the Form 10US with the observer in debriefing, the debriefer will determine whether incidents of deterrence or harassment are authorized or not. Cases of unauthorized harassment will be lined out on the 10AUS but will be dealt with as potential violations.

At sea, ask the captain and crew to call you to the deck if any marine mammal is caught while you are aboard, regardless of whether you are sampling fish below deck, sleeping, or whatever. Then, during fishing on trawlers or on processors receiving unsorted codends, decide in advance whether or not you are going to monitor the catch for marine mammals. Observers must watch the retrieval and dumping of nets that they plan to sample for species composition to watch for presorting, so it's usually possible to watch for marine mammal catch or interactions at the same time. Some trawlers will only empty a couple net sections at a time while sorting takes place below the trawl deck. In these cases, when the observer is sampling for fish composition, they need to be in two places at once. The only solution is to watch the first part of the net being dumped. Ask to be notified of any unusual occurrences and insist on no presorting of catch. Then go below to work and, as frequently as possible, go topside to spot check the dumping operation. Therefore, usually hauls the observer samples for groundfish are also monitored for marine mammal interactions.

In addition, some observers will estimate the haul size for every codend that is brought on board to reliably estimate total catch weight. In most cases the observer could also take a few extra minutes to watch the retrieval and dumping and accomplish two tasks at once. Marine mammals, such as sea lions, tend to congregate around codends being brought in, so watch for any signs of deterrence at that time (such as the use of "seal bombs"). Deterrence might also be used if the codend is brought up to make a turn, or while the codend is being set. You will not be expected to watch for signs of deterrence at every possible time it might be used if you have never seen or heard anything which makes you suspect that deterrence is ever used.

8. **Condition code** - use one of the following for each line of entry.

1 -- Carcass	5 -- Skull and bones
2 -- Bones other than the skull	6 -- Tusk/teeth only (no skull)
3 -- Live animal	7 -- Baleen only
4 -- Skull	

9. **Interaction code** - Choose one of the codes below or leave this field blank if the condition code is for a skull and/or bones. Refer to "Definitions" for these codes and then read what is needed for your "Remarks."

If a mammal was involved in more than one interaction, just enter it once and assign it the interaction code with the most serious consequences for the mammal. For example, an animal that was earlier caught and released injured, might be found freshly dead in the next haul. If you were sure it was the same animal, the interaction code would be 4 -- freshly dead. In this case, you would need to include in remarks how you identified it as the same animal.

1 - Deterred	9 - Deterred and released /escaped uninjured
2 - Released/escaped uninjured	10 - Deterred and released /escaped injured
3 - Released/escaped injured	11 - Deterred and lethal removal (not entangled)
4 - Freshly Dead	12 - Deterred and lethal removal (entangled)
5 - Unknown condition	13 - Hit propeller and died
6 - Previously dead	14 - Mammal boarded vessel on own volition and escaped uninjured.
7 - Lethal removal (not entangled)	15 - Mammal boarded vessel on own volition and escaped injured.
8 - Lethal removal (entangled)	16 - Feeding (on catch not yet landed)
	17 - Deterred and feeding

Definitions --

Deterred or Harassed: Animals are subjected to deliberate actions intended to frighten or harm them in order to limit, discourage, or avoid interaction with fishing gear. The animal may be in direct contact with the gear or in very close proximity. Such actions are authorized activities. Common examples of deterrence include yelling at the animal, banging pots and pans or other objects, throwing seal bombs or other objects, and shooting at or near the animal.

NOTE: Steller sea lions have additional protection under the endangered species act. Discharging a firearm within 100 yards of a stellar sea lion is a violation of federal law, even if the intent is a warning shot to frighten the sea lion away.

Lethal Removal (entangled): An animal that is killed (e.g. shot or clubbed) to prevent serious damage or loss of gear, catch or human life, and is in direct contact with fishing gear.

Feeding: is when a marine mammal is seen pulling fish from a net or off the hook of a longline. (Also termed "predation.") On a longliner, you might see sea lions or fur seals taking catch right alongside the rail. If killer whales are feeding though, often they won't come near the boat. Watch killer whale's behavior closely to see if they are actually diving down to the line. Seeing mammals around the ship and having empty hooks coming up is not necessarily observing predation. Having just fish heads or lips left on the line *is proof* of "feeding." Also look for fish that have been bitten or raked by teeth. Note though, that when mammals feed on discard it is not considered feeding predation *or* intentional feeding by humans.

When humans offer, give, or attempt to give food or non-food items to marine mammals in the wild, it is a violation. Observers must document intentional feeding of marine mammals by humans as an observed violation in their observer logbook. An entry may also be made on the 10AUS but leave the interaction code blank as there is no code for this type of interaction yet. Intentional feeding of marine mammals by humans does not include the routine discard of bycatch or waste during fishing or processing operations.

10. **Remarks** -- This is the most important part of recording the interaction. If you did not observe the animal, briefly explain why not, and where you got your information.

Species identifications: Record as much detail as you can. Was there fur? Note the shapes and size of dorsal fins, flukes and flippers. What type of coloration pattern was on the fins and body? Did it have external ears? Did it have baleen or tusks? What was the shape and size of the head and snout? List all of the characteristics you used to identify the animal to a particular species.

Condition of the animal:
Skull and/or Bones: Describe the number, size, type, and condition of the bones. What was done with them?

Deterrence/Harassment: Identify the species. What method of deterrence was used? How effective was the deterrence? Was the animal injured as a result of the deterrence? Where was the animal in relation to the vessel and the gear? Who deterred the animal? Why was the animal deterred?

Released or Escaped Alive (injured and uninjured): Identify the species. What part of the gear was the animal in? At what point during the fishing was the animal picked up? How was the animal released? What was the animal's condition upon release? Describe all injuries or symptoms of injuries.

Unknown Condition: Identify the species. Describe any known details about the animal. What circumstances prevented you from making a good judgement of the animal's condition?

4. Lengths, curvilinear and/or standard - Record the animal's length (in cm) in the appropriate field. For instructions on measuring, refer to the page following marine mammal species codes, titled "Length Measurements of Seals and Sea Lions."

5. Tooth collected (Y/N)? - Record "Y" if you collected a tooth; otherwise record "N". If you did not take a tooth or the snout of a dead Steller sea lion or northern fur seal, please indicate why in the Remarks section.

6. Photo taken (Y/N)? - Record "Y" if you took photographs; otherwise, record "N."

7. Remarks - Describe the situation. Describe any cooperation or hindrance by crew. Describe how the sex was determined. Document any uncertainties you may have concerning the data. If a specimen was collected (tooth or snout), describe it and your method of storage.

Cruise #	Vessel code	Year
4011	A110	97

Form 10AUS - Marine Mammal Interaction Data

Describe features used in identification; circumstance and effects of deterrents; particulars of entrapment or entanglement; types and extent of injuries; etc.

Date Month	Day	Haul, or set number	Species Name	Species code	Number of individuals	Did you observe mammal?	Condition code	Interaction code
09	01	49	Steller sea lion	EJ	1	Y	1	4

Remarks: (see manual for list of required information)

Sea lion was found as haul was dumped. It was not decomposed and only 2 wounds were near mouth. Animal was over 2 meters long, light brown color, large foreflippers, external ears.

Date Month	Day	Haul, or set number	Species Name	Species code	Number of individuals	Did you observe mammal?	Condition code	Interaction code

Remarks: (see manual for list of required information)

Note: A single example is shown above, this form cannot be compared with CMB example data.

Date Month	Day	Haul, or set number	Species Name	Species code	Number of individuals	Did you observe mammal?	Condition code	Interaction code

Remarks: (see manual for list of required information)

Date Month	Day	Haul, or set number	Species Name	Species code	Number of individuals	Did you observe mammal?	Condition code	Interaction code

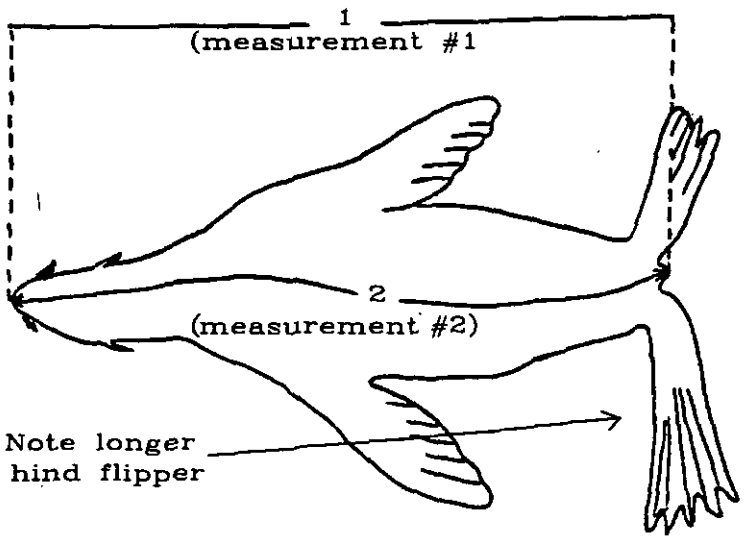
Remarks: (see manual for list of required information)

Common and Scientific Names and Species Codes for Marine Mammals

Code	Common Name	Scientific Name (NE indicates no equivalent)
NU	None	
CU	Northern fur seal	Callorhinus ursinus
EJ	Northern (Steller) sea lion	Eumetopias jubatus
ZC	California sea lion	Zalophus californianus
UO	Unidentified otariid (fur seals and sea lions with visible ears)	
OR	Walrus	Odobenus rosmarus
PV	Harbor seal	Phoca vitulina
PL	Spotted seal; larga seal	Phoca largha
PH	Ringed seal	Phoca hispida
PF	Ribbon seal	Phoca fasciata
EB	Bearded seal	Erignathus barbatus
MA	Northern elephant seal	Mirounga angustirostris
US	Unidentified phocid (hair or true seals without visible, external ears)	
UP	Unidentified pinniped (the order which includes both otariids and phocids)	
EL	Sea otter	Enhydra lutris
PD	Dall's porpoise	Phocoenoides dalli: dalli type
PT	Dall's porpoise	Phocoenoides dalli: truei type
PB	Dall's porpoise	Phocoenoides dalli: black type
PX	Dall's porpoise	Phocoenoides dalli: type unknown
PP	Harbor porpoise	Phocoena phocoena
DD	Common dolphin	Delphinus delphis
LO	Pacific whiteside dolphin	Lagenorhynchus obliquidens
LB	Northern right whale dolphin	Lissodelphis borealis
SC	Striped dolphin	Stenella coeruleoalba
TT	Bottlenose dolphin	Tursiops truncatus
SB	Rough toothed dolphin	Steno bredanensis
GG	Risso's dolphin	Grampus griseus
SL	Spinner dolphin	Stenella longirostris
SA	Spotted dolphin (Central Pacific)	Stenella attenuata
SG	Spotted dolphin (Eastern Pacific)	Stenella attenuata
LH	Frasier's dolphin	Lagenodelphis hosei
UD	Unidentified dolphin/porpoise	NE
GM	Shortfin pilot whale	Globicelphala macrorhynchus
FA	Pygmy killer whale	Feresa attenuata
PC	False killer whale	Pseudorca crassidens
OO	Killer whale	Orcinus orca
DL	Belukha; beluga	Delphinapterus leucas

(List continues on the next page)

Length Measurements of Seals and Sea Lions



Upper half of the diagram is a Stellar Sea Lion, the lower half a Northern Fur Seal.

Standard Length (measurement #1) is the straight-line distance from the snout to the tip of the tail flesh on the unskinned body, belly up, ideally with the head and vertebral column on a straight line. If rigor has set in, then this measurement probably cannot be taken and measurement #2 should be taken.

Curvilinear Length (measurement #2) is taken when the seal cannot be stretched belly up, as when rigor sets in, or is too heavy to be moved. It is the shortest surface distance from the tip of the tail flesh along the back, belly, or side. Record the type of measurement taken. Seals and Sea Lions are usually measured with a flexible tape.

FORM 11US - MARINE MAMMAL SIGHTING FORM

This form will help us determine the distribution and behaviors of marine mammals. Data from these forms are integrated into the National Marine Mammal Laboratory's Platforms of Opportunity database, which has information on marine mammals from throughout the North Pacific.

Marine mammal sighting data are valuable, whether or not you were deliberately looking for mammals. Thus, if a crew member points out a mammal to you, or if you merely glance up from your work and see a mammal, write it down, and record the information on the form.

We are interested in every species of marine mammal that you encounter and will provide an identification guide to assist you in making identifications. If you are unable to positively identify an animal, then please indicate so on the form. Records of unidentified marine mammals tend to lend credence to those records that include identification. Please give us a complete description with comprehensive notes and sketches as necessary, to fully describe any species you encounter for the first time each cruise. Records of species which are not fully documented and have not been previously encountered will be difficult to verify.

For the more commonly seen species (e.g., Dall's porpoise), you do not need to give detailed descriptions of subsequent sightings within one contract. However, if the sighting involves unusual behaviors or documents a fishery interaction or warrants some extra description (e.g., mating humpback whales), please write it up fully.

NOTE: DO NOT FILL IN SHADED BOXES.

1. OBSERVER: Write your name here.

2: VESSEL: Write the vessel name here.

3. DATE: Enter year (e.g., 95), month and day, in that order.

4. TIME: Time of sighting is logged when the animal is first seen. Use the military time system and Alaska local time (ALT). If you know the Greenwich Mean Time offset, put it in boxes 11 - 13.

5. LATITUDE: Record the latitude to tenths of minutes, if possible. The name of the general locality is optional.

6. LONGITUDE: Record longitude to tenths of minutes, if possible. Place E or W in box 30, depending on which side of the 180th meridian the sighting occurs.

7. SIGHTING CONDITIONS: Give a qualitative evaluation of the overall sighting conditions. Excellent: Unlimited visibility, flat seas. Good: Sighting conditions affected somewhat by glare, sea state or weather. Fair: Sighting conditions affected by a combination of problems, e.g, heavy seas or poor weather. Poor: Severely limited visibility due to high seas or poor weather.

NARRATIVE AND SKETCHES: These sections are very important parts of the observation. ***Remember, if you identify the animal, say how you did it.*** Everything that you observed about the animal and used to identify it should be entered. Be liberal with sketches! We always appreciate them.

Important things to look for and make notes on when attempting to make an identification are:

> ***Shape and size of dorsal fin and its position on the body***. If possible, also note size and shape of tail and flippers.
>
> ***Length***. Size is difficult to estimate at sea, so if it is convenient, compare unfamiliar animals with a species with which you are familiar. For example--"about size of female Steller sea lion" or "slightly smaller than adult male killer whale."
>
> ***General shape of body***, slender or robust?
>
> ***Shape and size of snout***: Is it long or short? Estimate length in inches. Is there a definite break between snout and forehead? Is the forehead markedly bulbous?
>
> ***Color pattern on fins and body?*** (stripes, spots, patches, mottling).
>
> ***Shape, location, and direction of blow:*** Is it single or double? Where is blowhole located on head? Does it lean forward or go straight up?
>
> ***Scars and scratch marks?***

Check off the ***Body Length Estimate***, and circle any ***Behaviors Seen*** or ***Fishing Interactions***. Note here if you've taken any ***Photos or Video*** that may be helpful for species identification or photo-identification for species including killer whales, humpback whales, or blue whales. On the back of the form are profiles of back, blow and heads of many marine mammals. Circle those which most closely resemble what you observed.

Be generous with your narrative of animal's behavior. If there are several animals, are they in a tight school, a loose school, or scattered either singly or in small groups? Describe their diving behavior. How many times do they blow when they come to the surface? Do they raise their tail flukes when they dive after their last blow? How long do they stay down between each series of blows? Do they jump (breach) clear of the water? If so, do they jump in a smooth arc or do they sometimes belly-flop, somersault, or spin? Were the marine mammals attracted to the ship by the net retrieval? Were they feeding off discarded fish and fish parts?

Last but not least, this form has been recently redesigned. Please write in comments and suggestions for ways to improve the form in future revisions.

Form 11US

MARINE MAMMAL SIGHTING

NOAA/NMFS/AFSC/NMML
Platforms of Opportunity
7600 Sand Point Way NE
Seattle, WA 98115

Observer(s) Gentle Giant Vessel Big Blue

date: 97 05 21 (yy mm dd)

local time (24 hr. clock): 13:00

+/- GMT: +/-

latitude: 56° 24.3' N

N/S

general location (optional)

longitude: 167° 10.7' W

E/W

sighting conditions: ☐ xint ☒ good ☐ fair ☐ poor

Beaufort: 2

+/- water temp.: + 05.0 °C

species (common and/or scientific name): Fin Whale

confidence: ☐ sure ☒ likely ☐ unsure

sighting cue: Saw blows about 200m off port

closest approach: 100 meters

number sighted (best): 8

number (minimum): 5

number (maximum): 10

observer

vessel

platform

vis

species code

sighting cue

conf.

length

photos

behaviors

interactions

multi

Narrative

Make identifications only on specific features seen. Mention them here. Include body features, markings and coloration, associated organisms, elaborate on behaviors, etc. The most valuable sightings contain a good amount of detailed information.

Blows were followed by very falcate dorsal fin. Animals got closer to vessel; slender bodies, dark in color, lighter on dorsal part of head. Final id based on jaw color pattern: right side almost white (at least visible part). No flukes seen. Similar to sei whale description but much bigger & sei whales not likely north of Aleutians.

Body Length Estimate

- ☐ < 3 m (< 10')
- ☐ 3–8 m (10–25')
- ☐ 8–16 m (25–50')
- ☒ 16–26 m (50–80')
- ☐ >26 m (>80')

Behaviors Seen

(circle as appropriate)

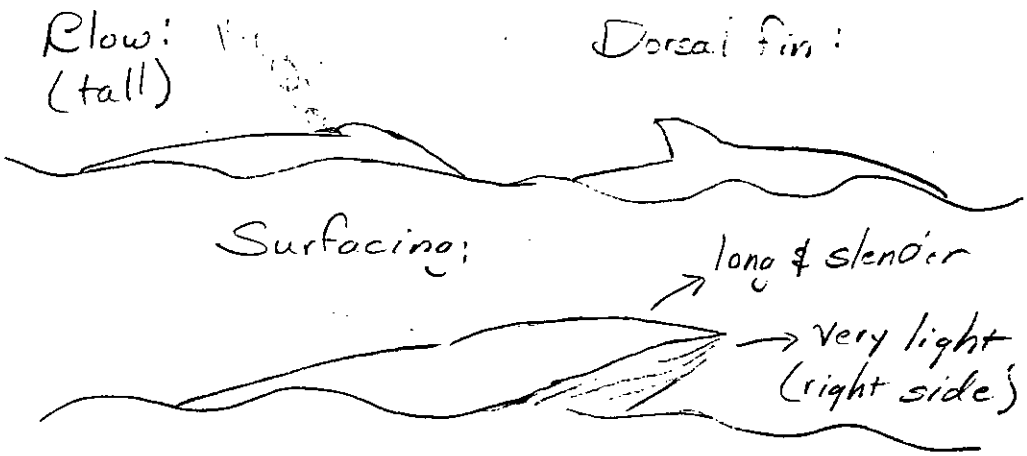
bowriding (small cetaceans)
stern/wake riding
galloping ("porpoising")
jumping
(slow rolling)
roostertailing
milling

spyhopping (large cetaceans)
(blow visible)
breaching
pec (flipper) slapping
lobtailing
tail raised on dive
tail throws
lateral lunge feeding
vertical lunging
group lunging
flukes up on dive

rafting (pinnipeds)
resting (jughandle)
running ("porpoising")
inverted slaps
leaving haulout
vocalizing

Sketches

When possible, make a sketch noting pigmentation, anatomical features, scarring, posture, anatomical anomalies, group positioning, etc.



Fishing Interactions

feeding on discards
feeding from gear
swimming near gear
contact with vessel
contact with gear
trailing gear

None

Photos/Video (optional)

☒ photographs
☐ video

roll/tape #

frame(s) unsure

☐ Check here if there was more than one species of marine mammal present at this sighting. Please fill out a form for each species.

cruise number and vessel code: 38 01 A 9 9 9

BIRDS

INTRODUCTION

The National Marine Fisheries Service, U.S. Fish & Wildlife Service (FWS), and the National Biological Survey (NBS) are cooperating to obtain accurate information on the mortality of birds related to trawl, longline, and pot vessels fishing groundfish in the U.S. Exclusive Economic Zone (EEZ) of the Gulf of Alaska and Bering Sea. Bird monitoring activities began in 1990 and were expanded during the 1993 season. The major change was to ask observers to provide detailed information on the identity of incidentally caught birds. Of special concern are a small number of species whose populations are currently at very low levels or declining.

Observers are not expected to have to devote much time to duties pertaining to birds. Birds will rarely be encountered during species composition sampling because incidental take is low. Low take rates do not, of course, diminish the importance of collecting accurate and reliable information. In addition to recording incidental take, some very valuable information can be collected by observers aboard fishing vessels, such as documentation of sightings of endangered species or recovering leg bands from birds incidentally taken during fishing operations. Again, these will be rare events and most observers will not encounter such opportunities.

INCIDENTAL TAKE

Millions of birds, including some eighty-plus species, occur over waters of the EEZ in Alaska. The presence of "free" food in the form of offal and bait attract many birds to fishing operations. In the process of feeding, birds sometimes come into contact with fishing gear and are accidentally killed. For example, most birds taken during longline operations are attracted to the baited hooks when the gear is being set. These birds become hooked at the surface, and are then dragged underwater where they drown. The probability of a bird being caught is a function of many interrelated factors including: type of fishing operation and gear used; length of time fishing gear is in the water; behavior of the bird (feeding and foraging techniques); water and weather conditions (e.g., sea state); size of the bird; availability of food (including bait and offal); and physical condition of the bird (molt, migration, health). Almost any species which occurs in these waters is susceptible to interactions with fishing gear, although a few species are especially vulnerable.

In 1990-1992, observers recorded the number and total weight of birds in their sample. All birds were recorded as "unidentified bird". These data indicate the take rate of birds during commercial fishing operations has been relatively low. For example, in 1990 the number of operations with birds ranged from 0% of (groundfish) pot sets and bottom trawl hauls to 5% of longline sets. However, with these data it was not possible to determine which species or species groups were involved. Anecdotal information and data collected by observers during 1993-1994 indicate that the species most likely to be trapped by longline gear in Alaskan waters are: black-footed and Laysan albatrosses; northern fulmars; black-legged kittiwakes; and glaucous-winged and herring gulls. Trawl gear tends to capture short-tailed and sooty shearwaters and glaucous-winged

1. Species involved.
2. Magnitude of mortality.
3. Frequency of occurrence and locale.
4. Causes and contributing factors.

These data will enable scientists to (1) determine the extent of the problem, (2) in conjunction with incidental take data, allow an assessment of total mortality, by species group, and (3) potentially provide information leading to methods in reducing mortality due to collisions with vessels. Effective management requires accurate and complete baseline data.

When you observe cases where birds fly into, or strike, the vessel, record the incident and associated data on the bird strike table in your logbook section on birds. Specific instructions are included with the table. In general, to fulfill the objectives outlined above you should record:

1. Species identification: Use the materials provided in your identification manual to record the species or species group(s) involved. Provide verification by listing the characters used to make the identification in the comments section of the table.

2. Magnitude: Record the number of individuals involved, and the percent mortality. Note if you counted them directly or estimated the numbers. If an estimate was used, note how this estimate was made. If two or more species are involved, counts or estimates by species group should be provided.

3. Circumstances: A variety of factors may contribute to these instances. Record the vessel type (trawler, longline, or pot), size, and activity (running, fishing, etc.); date, time, and duration of event; vessel location; if at night were vessel lights on, how many lights, and relative brightness (illuminating the deck or just running lights); sea and weather conditions (clear, fog, or rain; wind speed and direction); and, if possible, bird behavior before and during the event.

OTHER ITEMS OF CONCERN

Banded Birds: The U.S. Fish and Wildlife Service maintains a database on all banded birds. Recoveries of these bands provide valuable data such as distribution, movements, survival rates, and age. Please use your observer logbook to record information on banded birds. If a banded bird is recovered alive, handle with care, record as much information as possible taking care not to harm the bird (i.e., band number, band type, and condition of bird), do not remove the leg-band, and release the bird. If the bird is recovered dead, record all pertinent data and ask for permission from the vessel personnel for freezer space in order to return the specimen to Seattle. If permission is given, notify an observer office that you are returning with a bird specimen so we can arrange a permit for you. Double-bag the bird, include a tag with collection data and freeze it.

Tag Information: Species, sex and age (if appropriate), date, sea surface temperature, location (latitude and longitude) collected, collector's (your) name, vessel name, cause and circumstance of death.

SUMMARY OF OBSERVER DUTIES REGARDING BIRDS

1. During sampling: Record the number and weight of the bird as part of your sample. Determine which species group the bird belongs to, and use the appropriate code. Use the most definitive (closest to species) taxonomic grouping you feel comfortable with.

2. Other than sampling:
   A. Birds striking the vessel - (1) record your estimate of total numbers and how you made this estimate, (2) identify the species involved, list the identification characteristics used and note if photographs were taken, and (3) record the associated environmental conditions and vessel activity during the occurrence. A table is provided in the seabird section of your logbook to record this information.

   B. Banded Seabirds - whether in your sample or from a bird striking the vessel, record all pertinent data and save the specimen when possible.

   C. Sightings - record sightings of any of the "sensitive" species as noted above.

   D. Seabird Daily Notes - use the seabird section provided in your observer logbook to record notes associated with birds.

SPECIES CODE LIST - BIRDS
(In Taxonomic Order)

Species Code	Species Group	Scientific Name
844	Loon unidentified	Gaviidae
846	Grebe unidentified	Podicipedidae
848	Tubenoses unidentified	Procellariiformes
849	Albatross unidentified	Diomedeidae
850	Short-tailed albatross*	Diomedea albatrus
851	Laysan albatross	Diomedea immutabilis
852	Black-footed albatross	Diomedea nigripes
853	Shearwater/petrel unidentified	Procellariidae
854	Northern Fulmar	Fulmarus glacialis
855	Dark Shearwater unidentified	Puffinus sp. (sooty and short-tailed)
856	Sooty Shearwater	Puffinus griseus
857	Short-tailed Shearwater	Puffinus tenuirostris
858	Storm-petrel unidentified	Hydrobatidae
861	Cormorant unidentified	Phalacrocoracidae
862	Waterfowl unidentified	Anatidae

OBSERVING ON LONGLINE AND POT FISHING VESSELS

Catcher or C/P? -- Longline and pot boats may be the "catcher only" type that ice and deliver their fish to a shoreside plant or to another ship for processing, or they may be catcher/processors. "Heading and gutting, **without freezing or additional preparation,** is not considered to be processing for purposes of reporting to NMFS. If your operation only heads, guts, or ices fish, or cools fish in a recirculation seawater system, NMFS does not consider your operation to be processing." If your vessel is not "processing," follow the report week instructions (in the catch message section) for catcher boats, i.e. all hauls are attributed to the week end date in which the **delivery** of catch is completed.

Longline Gear -- Longliners catch fish using a line with baited hooks attached to it. Hooks are each attached to the longline by a length of line called "gangen." NMFS refers to longline gear as "hook & line" and defines it as, "A stationary, buoyed, and anchored line with hooks attached, or the taking of fish by means of such a device." The "long line" may be made up of sections of line called "skates" which, when on board, may be coiled into tubs or onto a skate bottom (a white fabric square with lines on the corners to tie it into a bundle), or the line may be wound onto an empty net reel. On vessels equipped with an auto-baiter system, coils of the line are hung on a rod, suspended by the hooks and gangen, much like coat hangers on a closet dowel. The length of line on one rod may be referred to as a "magazine." During retrieval of the line, the end of one skate, magazine, or half magazine and the start of the next may be flagged by a line marker, knot, or a weight attached to the line. The number of hooks per section of line is fairly uniform. Rather than count every hook sampled, observers use these line markers to count the number of sections, and thence, the number of hooks sampled.

A longline is put out to fish or "set" from the stern of the vessel. Each end of the longline is anchored and marked with buoys. The set is then left to soak for a couple hours while the fishermen go to set or retrieve another line. Later the vessel returns and starts retrieval of the line over a roller onto the weather deck or into a cutout in the starboard side of the vessel called the "pit." On a longliner, the fish are removed from the hooks one at a time as line is retrieved and are immediately processed or put into the hold or tanks. Longline fishing is labor-intensive but it produces a very high quality product. There are typically three sets made and retrieved each day, and the target groundfish species are Pacific cod or sometimes, Greenland turbot. Halibut and sablefish (also called black cod) are fished with longline gear by those who have Individual Fishing Quota (IFQ) allocation. Longline vessel operators who do not have IFQ will release halibut off the line as a prohibited species. The techniques for releasing halibut off the line are specified by regulation and observers are asked to monitor their compliance with careful release while sampling.

Longline Halibut/Sablefish IFQs -- This program for halibut and sablefish longline fisheries began in March, 1995. The implementation of this program culminates more than 5 years of discussion, debate, and analysis by the North Pacific Fishery Management Council (NPFMC) and the NMFS. Though still a subject of debate, IFQs for halibut and sablefish are now law.

IFQs are another way to manage a fishery in that they give individuals a set portion of quota rather than have them compete in an open access environment. Similar IFQ systems have been

In retrieval, the buoy line is snagged, and the line hauler winch brings the pot to the railing. The pot is swung onto the "launcher", a platform attached to the rail. In heavy weather, a pot may swing wide before it can be set onto the launcher. Pots weigh hundreds of pounds and swinging and shifting pots, colliding with crewmen, have resulted in broken bones and backs. Observers must develop an awareness of this danger potential and stay well clear of pots being retrieved. When the pot is landed on the platform, a side panel of the pot is opened and the inboard side of the launching platform is lowered to tip the pot and allow the contents to spill into a waiting tote container. The pot is then re-baited, closed, and then the launching platform is tilted up to slide the heavy pot overboard. As the pot quickly sinks, loops of buoy line whip overboard. Loops of buoy line have lassoed crewmen and dragged them overboard and down before rescuers could grab them. Obviously observers should also stand well clear of the pots and buoy line during launching.

CATCH RATE ESTIMATES

Longline and pot catches are logged by set, and all sets are attributed to the date that the retrieval of that set was completed. Just as on the 2US form for trawlers, the only time a noon position is recorded on the Catch Summary Form 1US is on a non-fishing day. (Refer to the example Form 1US which follows.) The skipper's catch weight estimates are always based on deck tallies (counts) and/or production data. There are no deck or bin estimates of catch volume or weight. ***The skipper's catch estimates do not usually include bycatch or, if they do, it is a rough estimate.*** On longline vessels, losses of fish which drop off the line are considered part of the total catch but are not usually included in the skipper's catch estimate. Therefore, on longline and pot fishing vessels, observers are to use their own catch estimates for the "Official" Total Catch.

For Sampled Sets: On some boats, observers may be able to sample whole sets. In that case, use the observer's sample weight (at the top of the species weight column on 3US) as Official Total Catch. When sampling less than the whole set, Observer's Total Catch estimate is based on sample weight, extrapolated to the whole set using the following proportion.

$$\frac{\text{Weight sampled}}{\text{Hooks or pots sampled}} = \frac{\text{Estimated total catch wt.}}{\text{Total hooks or pots retrieved}}$$

The total catch weight, extrapolated from sample data, is used as the Observer's Total Catch estimate. If a set is not sampled, there is no Observer's Estimate. Total catch weight, extrapolated from sample data, is the Official Total Catch weight as well. For a set not sampled, do not use the skipper's (vessel) estimate or an adjusted vessel estimate. Use an average weight-per-hook value from sampled sets applied to the number of hooks in the unsampled set as explained below.

For Unsampled Sets: To calculate the OTC of a set not sampled, the observer should apply a summed ratio from sampled sets similar in catch composition to the number of hooks or pots in each unsampled set. Catch composition, and therefore weight, will vary with depths, times of day and areas fished. Use your judgement to apply ratios from sample data to "like" sets.

$$\frac{\Sigma \text{ sample wt. of sampled sets}}{\Sigma \text{ sampled hooks or pots in sampled sets}} = \frac{\text{Total catch wt. of an unsampled set}}{\text{No. of hooks or pots in an unsampled set}}$$

Wt. of retained fish in set: It isn't sufficient to simply adjust the skipper's catch weight estimation without verification. How accurate were the counts of target fish or pans of product? Did you ever verify the count? If the fish count was multiplied by an average weight, what was it and how did it compare with your average weight data from the same time period?

On a freezer boat, were pans of product ever weighed to verify average pan weight? If a product recovery rate was used what was it and where did that figure come from? Did you sample to verify the product recovery rate? (For information, refer to "Product Recovery Rate Sampling" in the appendix.)

For unsampled sets, you could use:

$$\frac{\Sigma \text{ Sample weights of like sets}}{\Sigma \text{ Retained fish wt. in samples}} = \frac{\text{OTC of an Unsampled set}}{\text{Rnd wt. of ret. fish in unsamp. set}}$$

Notice the use of original sample data in the formula above as opposed to using extrapolated total catch estimates.

FORM 1US CATCH SUMMARY FOR LONGLINE AND POT VESSELS

This form is used to collect the fishing effort and total catch data for either longline or pot/trap vessels. Most of the form is filled out by observers for either of these gear types, but there is a part of the form that is specific for each gear type. Points to note :

1. **An entry must be made for every set and every day of your assignment to that vessel.** Start your entries with the day you put your gear aboard and end them on the day you disembark with all your gear. Each delivery or day in port must be noted on a line of 1US. Use one line to note a delivery even if there are also sets retrieved on that day. Any notes or comments other than for deliveries or non-fishing days should be placed in a part of the form that is not keypunched.

2. **Heading:** The identifying cruise number and vessel code will be given to you prior to deployment, in training or briefing. Each vessel you are on will have a different vessel code. Keep data for each vessel separate. For "Year" enter only the last two digits, such as "97."

3. **Plant/Processor box:** This box is for catcher-only longliners that deliver to processors. Each processor delivered to should be listed one time in this box. Include the processor's location and processor code as indicated. Keep this list together on only the first page or two of a set of 1US forms.

4. Place a check mark in the far left column to indicate which longline or pot sets you sampled for composition. Enter leading zeros in dates as needed. Skip a line between each day's entries.

5. For each fax transmission of 1US data forms to NMFS, you will need to enter an ORC (Observer Routing Code) number in the box above the date and set number columns. There should be only one ORC number per transmission so the same number should be used on a second page of 1US when appropriate. The ORC is a three-digit security code entry which will be explained to you in training.

6. A given set number should be used only once - no duplicates. The set numbers must be in numerical sequence, ascending order. All sets must be recorded. A set number must be assigned to every set. Use set number "0" when the vessel was at sea but did not finish retrieving any set in the day. Also record the noon position and note the circumstances on the same line.

7. **% Monitored for Marine Mammals:** As the catch of longline and pot vessels is brought aboard over a period of hours, the observer may not be on deck to observe all of the retrieval for catch or deterrence of marine mammals. Observers on longline and pot vessels must roughly estimate the percent of the retrieval monitored, to the nearest whole percent. (Rounding to the nearest ten percent is most common.) An entry is required for every set. If

The elapsed time should be entered in hours (on the left) and minutes (on the right). Use leading zeros as necessary. For example, a soak time of 38 hours and 5 minutes would be entered as 38|05.

15. **A set is assigned to a day** according to the time the retrieval of the set is completed, which is not necessarily the same day that the set was begun to be laid or the day that you sample. Sets whose retrieval is completed before 0000 hours are attributed to the previous day, and sets whose retrieval is completed on or after 0000 hours are assigned to the next day.

16. **Depth:** No decimal entries are accepted in this field. The average bottom depth can be recorded in either fathoms (most likely) or meters, depending on what units the depth recording instrument is set at. Make sure that you indicate the units (fathoms or meters) with an "F" or an "M" in the next column for every depth that you record.

Longline vessels only:

17. *On 1US the term "skates" can be adapted to whatever units of longline gear your vessel uses.* Other terms for units of gear in use may be: magazines, half magazines, racks, tubs, or coils. Enter numbers for whatever units of gear are used on your vessel.

Number of skates in the set must be filled in and must be a whole number, no decimals. It should represent the number of units of longline gear that are *retrieved* from the set, not necessarily the number that are set. If whole skates are lost, list that set with a gear performance code 6 on the 1US, then the number of skates and the total hooks in the set should be adjusted. Note the event in your logbook.

Skate length should represent the length of groundline that the average skate (or other unit of gear) consists of. The length **should be recorded in fathoms, not feet or meters,** so convert the length to the proper units if necessary (see Table of Equivalents in the Appendix). If the set consists of skates of different lengths, record the mean length (proportional average).

Number of hooks per skate: No decimals will be accepted in this field. The field may be left blank if the total hook count is more accurate than the calculation of skates times hooks per skate. Sometimes a longline consists of alternating skates with different numbers of hooks. Find out what the pattern is and note this in your logbook.

Total number of hooks: This number may be an actual count or it may be the result of multiplying the "# of skates" by the "# of hooks per skate". If Total hooks is an actual count, leave the "# of hooks per skate" blank to defeat the computer program check on this number.

Do not subtract (or extrapolate and subtract) individual hook loss. Even the occasional snarl of line does not need to be estimated for loss of fishing effort unless whole skates (or units of gear) are involved. Hooks that are set without bait still catch fish.

Pot/trap vessels only:

18. Record the number of pot/traps *retrieved* per set or string. If pots are lost, then this will not be the same number as was set. If possible, keep track of the number of pots that are lost and

SPECIES COMPOSITION SAMPLING ON LONGLINERS

When To Sample and How Much - Most longline sets are two to five miles in length and vessels will lay out two to five sets per day and retrieve two to five sets per day, alternating between setting and hauling. Some vessels make sets 25 or more miles in length and will only set one line and retrieve one line in a day. On longline (and pot boats) observers do not use the random sample table. Instead, they just sample most of the sets. That is, if there are one or two set retrievals, sample at least one and usually both sets. If there are three sets, sample at least two, three if you can. If there are four or more sets, reduce your sample size per set if necessary and sample three to four sets per day.

On longliners, the catch comes up one fish at a time and the fish are usually processed as they come aboard. Observers frequently notice "patchiness" of catch and composition on a longline set. For example, longliners may set their line at an angle on a slope. From the deep water, sablefish, shortspine thornyheads, and grenadiers are commonly caught. Shallow water sets yield more Pacific cod, arrowtooth flounder and halibut. The change in species composition across a set should be considered in choosing a sampling strategy.

Longline observers should do their tally sampling in several sample periods; spaced at intervals throughout the retrieval of a set. The overall composition sample size should be 33% to 50% or more of the total hooks in the set. Some observers are able to sample whole sets routinely on certain vessels, saving them OTC extrapolations. Sample size is measured on these vessels by the number of hooks or pots sampled. Increasing the frequency of sampling is more important than increasing the sample size. If you only sample from one part of the retrieval then you need to have a larger sample. Start with the guideline of sampling one third or more of each set sampled. A later section titled "Obtaining Unbiased Samples" provides more sampling specifics.

Longliner Sampling Duties

1. During Tally Sampling Periods for Composition:
    a. Determine the number of hooks sampled
    b. Tally the dominant species
    c. Collect bycatch
    d. Record information on drop-offs
    e. Estimate the length of tallied halibut
    f. Observe method(s) of releasing halibut
    g. Marine mammals
        i. Watch for interaction with, or catch of, marine mammals--10US
        ii. Marine mammal sightings--11US
            (1) Watch for predation (or evidence of) on catch.
            (2) Take photos of killer whales, if possible, for individual identification.

2. Outside of Tally Sampling Periods:
    a. Sort, count, and weigh bycatch

number of these fish using a thumb counter or a stroke-tally on a plastic sheet. As you gain in proficiency, it may be possible to tally three or more species at once. The tallied species should not be collected during your sampling period. Before, between, and/or after sampling periods, collect a subsample of these to determine their average weight. Have the rollerman bring in the other, non-tallied species during each sampling period for counting and weighing later.

Drop-Off Fish Identification - On the plastic deck form, record species that drop off the line before the roller and are missed by the gaffer. Write down their identification, number, and if unusual, estimate their weight. Keep a tally of target drop-offs to calculate the percent retained (by weight) that is entered on the CMA form.

To help in identifying fish that drop off the line before being landed, study the fish brought aboard. Familiarize yourself with the most visible characteristics that you might be able to note before the fish falls into the water. If you know that a drop-off fish was either an arrowtooth or a Kamchatka flounder, a shortraker or a rougheye rockfish, or a shortspine or longspine thornyhead, these *group* codes are available in the species code list specifically for longline observers. It is expected that some fish of each species in these multiple species groups would also be listed separately--coming from bycatch landed during your tally sample. Other fish that drop off the line before you are able to identify their species should be listed as "flatfish unidentified" or "rockfish unidentified" with the appropriate codes on the 3US. For weights of drop-offs, use the average weight of the species you believe it might have been. On 3US, do not extrapolate percentages of identified species to unidentified fish which dropped off.

On the catch messages however, you will have to allocate the unidentified drop-off fish to a report group. Since there is no report group for unidentified fish, during sampling, determine to which species group the drop-off fish most likely belongs. If you have no clue as to its identity, consult the species weights on your plastic sheet or 3US form and assume the unidentified fish has the identity of the flatfish or rockfish species with the highest percentage by weight in the sample. On the catch message, list its weight with that species report group.

Obtaining Weight of Tallied Halibut - Halibut will usually be released from the line and not landed unless the vessel is retaining halibut under Individual Fishing Quota (IFQ). When halibut are being landed for retention during a sample period, the options, in order of preference, are to weigh them, or measure them, estimate their length, or use an average weight. When halibut are not being retained during a tally sample, watch the method used to release them (see following section on careful release monitoring) and estimate their length. Later refer to the Length/Weight Table in the appendix to obtain the weight of each halibut. (For when there are lots of halibut, use of an average weight is explained below.)

One way to improve on estimates of halibut length is to measure and mark the side of the ship near where the halibut will hang briefly before falling back into the sea. Some observers have marked a long gaff pole as a ruler to hold out from the rail. Others have hung a measured line, knotted every 10 centimeters, against the side of the boat. Strive to insure your length estimates are not guesses but reliable data since fisheries are being closed based on halibut bycatch weight!

an *equal* opportunity of being sampled. If your sampling method is to tally when ready, make a sample record table of which units of gear (skates, tubs or mags) or depths that were sampled for each set in your logbook. Look at this record after a week or two to see if your sampling is skewed. Consider assigning each unit of the gear a number and randomly selecting the units to be sampled before retrieval.

Should you be unable to tally at intervals throughout the retrieval as described above, tally some single portion (1/3 or more) of the set, but, to avoid bias over time, vary the portion sampled from set to set. For example, when three sets per day are retrieved, an observer might sample the first third of the skates/pots on the first set, the middle third of the second set, and the last third of the last set. Keep track of this in your logbook.

Careful Release Of Halibut - Most groundfish fisheries are currently managed using prohibited species catch limits (caps). A fishery is closed for the season once the bycatch cap is reached, regardless of whether the quota for that fishery was fully utilized. The halibut limits set annually by the North Pacific Fisheries Management Council, reflect the weight of halibut *mortality* by vessels targeting on groundfish species. Halibut bycatch is managed in terms of mortality because not all halibut caught and released die in the process. Mortality is estimated by applying discard mortality rates to bycatch estimates. Discard mortality rates are estimated by measuring the release viability of bycatch according to condition category; excellent, poor, or dead.

Unlike trawlers, longliners allow halibut to be returned to the water in a relatively short period of time, and thus increasing their chances of survival. Research conducted by the Pacific Halibut Commission determined that the previously accepted halibut mortality rates could be further reduced if measures were taken to carefully release the halibut during the retrieval process.

Reducing the rate of harvest mortality effectively increases the total tonnage of halibut that can be taken as bycatch. The longline industry, together with the Council, the Halibut Commission, and the NMFS developed a management plan known as the Careful Release Program. This program requires by regulation that halibut bycatch taken by longline vessels be released using one of the three following techniques:

1) Cutting the gangion;

2) Positioning the gaff on the hook and twisting the hook from the halibut;

3) Straightening the hook by using the gaff to catch the bend of the hook and bracing the gaff against the vessel or any gear attached to the vessel.

Puncturing a halibut with a gaff or other device; or allowing the halibut to contact the vessel or a fixed object in such a way that the hook is ripped from the halibut (known as crucifying) are prohibited actions. These actions are commonly used on other species of bycatch. However, out of concern for halibut mortality caps, they are not allowed to be used on halibut.

Since the Careful Release Program was implemented in 1993, industry and the Observer Program have worked together to develop a successful program. Weekly halibut viability reports

sampling of prohibiteds (such as length and viability sampling of halibut). Also, the requested workload of taking sexed lengths of approximately 150 of the target species each day may be too difficult on a longline or pot vessel if, 1) the fish are processed immediately upon landing, 2) slitting the belly to sex the fish would destroy the product, and/or 3) the fish are large and therefore more work to handle. You may find it necessary to reduce the number of length measurements taken each day and it is permissible to obtain unsexed lengths when necessary. Do not drop this sampling altogether. Just do as many as possible up to 150 per day, and sex as many as you can. If your vessel is targeting halibut, please collect length frequency data on a fish species other than halibut. Of particular importance are the various rockfishes harvested.

If the fish are being headed and gutted, try working with the crew, taking the length measurement first then examining the viscera visible when the fish is gutted by a processor. Another alternative is to ask the crew to show you how to make the pectoral cut. In general, make a diagonal dorsoventral cut from behind the head to behind the pectoral fin, then angle the knife forward to the isthmus. Make the same cut on the other side. Or, you may be able to just make a ventral cut from the pectoral fin anteriorly to the isthmus and back to the other pectoral fin. Then you can reach in and pull out the gonad or peer into the cavity to see the gonad and determine the sex. Pass the fish to the crew to finish processing. Make sure that your procedure is acceptable to the crew or factory boss.

Sexed length data are more useful and are preferred but if this is too time consuming or difficult, try to sex some of the measured fish (random subsample) and take un-sexed length measurements of the rest. If this cannot be done, such as when the fish are being frozen whole, unsexed lengths are better than no length data. *Remember that the sample for length frequency of target does not have to be a sub-set of the composition sample. Also, these fish may be taken from a set not sampled for composition.*

Halibut Length and Viability (L/V) Sampling – Ask the crew to land as many as 20 per set, or examine at least 20 per day for the viability study. Halibut length and viability sampling is next in importance after composition sampling. The viability study benefits all longline fishers, providing accurate data used when setting mortality rates for longline vessels. Observers are the only ones collecting these data on halibut condition so it is important that the crew cooperate in landing the required fish according to your sampling scheme.

There are two options for selecting the fish for these samples. **If you cannot sample using one of these two methods then do not take viability or length data on halibut.** Taking one sample for halibut is acceptable but it is preferred that you spread your collection out by sampling halibut in two to four sample periods, just before or just after tally sampling for composition. **Sample for halibut viability only on sets sampled for composition.** Either (1) Take a sequence of x consecutive halibut, where you choose the value of x from five to twenty fish depending on the number of samples per set, or (2) if there are lots of halibut on the line such that the first option would flood you with fish, collect every nth fish after completing the last fish. You choose the value of "n," usually two or three. The value of "n" is constant for the set. This second option allows you to work on only one fish at a time. Other sampling concerns and solutions will depend on if the vessel is fishing halibut IFQs.

Five issues to be aware of when sampling halibut for viability on longliners:

Halibut sampled for viability should be released inboard using the same method as is normally employed by the crew when halibut are released outboard of the roller. In most cases, the rollerman will be able to use the same release method inboard of the roller to release the fish as is used outboard when you are not sampling. The main exception is hook straightening: many rollermen find that this cannot be done inboard because they can't find anything to brace the gaff against. If halibut are released inboard for your sampling in a different manner than they are normally released outboard, try to work with the rollerman to overcome the problem. If this is just not possible, then it is permissible to allow one careful release method to take the place of another. Note this inconsistency on your Inseason Halibut Viability Form, keeping in mind that it may only be a problem for one particular crewman.

Attempt to rotate your viability sampling among all crew that are assigned to work the roller. Releasing halibut from the hook is largely a matter of skill, so "green" crew may produce different hook removal injuries than experienced crew. Be sure that your sampling does not all take place with one specific crewman, resulting in biased, or unrepresentative, data. Spread your sampling among the crew working at the roller.

Similarly, be sure to distribute your sampling across the set so that fish from the first end are not the only fish examined. Halibut caught on the first end are fish subjected a shorter soak time than those at the "far" end of the set. Since sand flea predation can be affected by soak time, it is important that sampling be spread out across the set so that halibut with varying soak times comprise the sample.

All halibut selected for viability sampling must be brought aboard the vessel for inspection, despite awkward size or injury that may occur by being brought aboard. You must have the fish in front of you to properly assess hooking and release injuries. You must closely inspect eyes, gills, and vent to look for sand fleas, and examine all parts of the fish for bleeding and other wounds. Under no circumstances should you look at a fish as it is hanging overboard from the hook. Also, data from large fish are just as important as data from small fish, because large fish may suffer different hook injuries due to their larger jaw. **It is crucial that any injury to the halibut while it is being brought aboard at your request (e.g., an errant gaff) is to be ignored in your assessment of viability.**

Any halibut which you intend to sample that ends up going through a crucifier, intentional or not, must be examined with the crucifier injury taken into account. Crucifier injuries are usually fairly severe, and it is impossible to overlook or disregard the damage while at the same time attempting to assess the other injuries. If you see that a large proportion of the halibut are getting crucified, be sure to notify the skipper/deck boss of your observations, as they usually do not want this practice to occur.

FORM 3US--SPECIES COMPOSITION FOR LONGLINE AND POTS

Worksheet

Species:	Sablefish	Grenadier				
Wt. of above:	50	60				
No. weighed:	145.5	211.30				
Avg. weight:	2.910	3.5217				

Other calc.& comments: Sampled 7 out of 10 skates (980 hooks). Tallied sablefish & grenadier

Cruise	Vessel Code	Year	Month	Day	Haul
4011	A110	97	10	22	9

ST = Sampling Type
L = Longline
T = Trap/pot

Species name	Sex	Species code	ST	Number	Species weight in kg. w/ decimal	No. of hooks or pots sampled	% Retained
(keypunch check)		999		821	2551.40	X	198
Halibut		101	L	33	99.12	980	
Salmon unident.		220	|	0	0	|	
Brown King crab	M	8	|	1	1.70	|	
Tanner crab		3	|	0	0	|	
Herring		611	|	0	0	|	
Skate		90	|	8	20.74	|	0
Sablefish		203	|	269	782.79	|	98
Grenadier		80	|	426	1500.24	|	0
Shortraker R.F.		326	|	1	2.70	|	0
Arrowtooth fl.		141	|	13	28.61	|	0
Shortspine Thornyhead		350	↓	60	79.30	↓	100
Pollock		201	L	10	36.20	980	0

SPECIES COMPOSITION SAMPLING ON POT FISHING VESSELS

Sampling on pot fishing vessels is very similar to the tally method described for longline vessel sampling. Please read the longline sampling section. When a pot is landed and opened, the contents are spilled onto a table or into a tote, or other container. Crew then remove the desired species, usually just Pacific cod, and throw the bycatch overboard. The observer should count the cod and take the rest of the bycatch aside for counting and weighing, thus relieving the crew of part of their work. After emptying, the pot has to be re-baited, closed and launched, then the vessel proceeds to the next pot to begin hauling it. Consequently, there should be ample time for the observer to complete the sampling of one pot before the next is emptied. In order to gather 50 cod to determine average weight without seriously delaying the crew, take just a few cod from each pot, weigh them quickly and return them to the crew before dealing with the bycatch.

MONITORING FOR MARINE MAMMALS

On longline and pot fishing vessels marine mammal catch occasionally occurs, and deterrence of sea lions and killer whales is more likely to occur than on trawlers. So, when observing on these vessel types, monitor for marine mammal interactions and record that effort on 1US. Fill out Form 10US for any occurrences of marine mammal interactions . An elephant seal was observed entangled in a longline and harbor seals have been caught in pots. Killer whales in the vicinity of a longline vessel may strip fish from a line being retrieved, particularly in the black cod and turbot longline fisheries. Sperm whales have also been observed to prey on fish caught on longlines. If they come close enough, there may be attempts to deter whales. On Form 10US, record deterrence or catch of marine mammals or instances of mammals feeding on catch.

Interactions with marine mammals are all coded on the 10AUS but in the case of whales feeding on longline catch, killer whales in particular, please provide additional information on the marine mammal *sighting* form, 11US. When observing on a longline vessel targeting black cod, turbot, or halibut you are more likely to see killer whales. They may just be touring around the vicinity or actively diving to the line to feed on catch. Try to distinguish feeding behaviors from other activities. Describe what you saw. Watch for fish coming up on the line that have been bitten or scraped by teeth. Only record feeding when you witness the animals in the act. Remember that when there is predation, the gear performance code on the 1US needs to be changed accordingly.

If feeding (predation) occurs during tally periods, make a record for 11US of how many fish were lost with what evidence of loss. Do not include just empty hooks as loss! When only fish heads (or "lips!") are on the hook due to predation, count the heads as you would whole fish and apply the average weight of whole fish for their weight. If the set is too decimated through predation, you may have to skip sampling that set. Detail the number of predator-damaged fish, and the average and total weight calculation for the prey species on the 3US worksheet. Sighting conditions, species identification, individual identification of killer whales, circumstances and behavior take on added importance for assessing predation.

PROCESSING PLANT OBSERVER INSTRUCTIONS

As a result of the implementation of amendments to the Fishery Management Plans for the Groundfish Fishery of the Gulf of Alaska and Bering Sea and Aleutian Islands Area, managers of processing plants that monthly receive 1,000 mt or more of groundfish are required to have an observer present at the facility each day it receives or processes groundfish. Managers of processing facilities that monthly receive between 500 mt and 1,000 mt of groundfish must have an observer present at the facility for 30 percent of the days it receives or processes groundfish during that month. ***Therefore, plant observer coverage days are days that the observer is present and the plant receives or processes groundfish.*** For each day you provide coverage some work should be performed (see "Duties" below). Some of these plants may also receive deliveries of crab, halibut or salmon. Observers are only to work on deliveries of groundfish. Individual observer assignments will vary; some observers may be stationed at only one 100% coverage plant, others may be expected to cover one 100% coverage plant and one or two 30% coverage plants, while others may cover two 100% coverage plants that are owned by the same company and are in close proximity to each other.

PLANT OBSERVER DUTIES AND PRIORITIES

Collecting Delivery Information: The Form A Port Sample Summary Form corresponds to the Haul Form 2US or the Set Form 1US and completing it is the top priority for a plant observer. Information must be gathered and recorded for all groundfish deliveries to a plant whether or not those deliveries were sampled by the observer. All days must also be accounted for on Form A, including days when no deliveries are made. The plant sampler is expected to contact the skipper of each vessel delivering groundfish to arrange for the collection of needed data from the observer aboard or the vessel logs.

Assisting Catcher Boat Observers With Sampling: Plant observers are expected to plan and schedule their time so as to be able to assist each vessel observer that samples at the plant. Plant observers should coordinate the assistance of the plant personnel and arrange for the set-up of totes, scales, etc. as needed. Plant observers might fill out a Form 3US, summarizing their delivery sampling for a vessel observer, but the responsibility for proportioning the data by haul, other data entries and catch messages rests with the vessel observer. Additional instructions follow.

Length Frequencies of a Target (Sample) Species: For 100% coverage plants--150-200/day; for 30% coverage plants--150-200/day on days that you work at the plant (you'll be working at this plant approximately 30% of the time). Sample preferentially the deliveries from non-observed vessels and those that did not sort the target species at sea. However, data from observed deliveries and sorted target fish **are used** so don't let that deter you. Do not take lengths of prohibited species unless you receive special project instructions or they are tagged fish or crab.

Age Structures: For 100% coverage plants--100/plant/mo; for 30% coverage plants--200/plant/3 mo. period. Remember that the fish you collect age structures from must be a sub-set of the fish sampled for length frequencies.

Special Projects: Observers will be asked to collect sample data on densities where possible and are sometimes asked to collect special biological information such as pollock maturity or stomach samples. If you are assigned a special project, follow the directions that will be provided.

FORM A - Plant Delivery Form

Cruise #	Plant code	Year
4214	P050	97

Catcherboat Name	ADF&G #	CG #	Permit #
Arcturus	45978		
Auriga	56153		
StarLite	34931		
Resolute	17402		

Delivery sampled ?	Observer onboard ?	Delivery date: Month	Delivery date: Day	Delivery Number	Gear type	NMFS area number	No. of tows	Average duration (minutes)	Total wt. delivered (round wt.)	LB or MT	ADF&G # of catcherboat	ADF&G fish ticket number
✓		04	07	1	1	517	5	249	187297	lb	45978	023076
		04	08	No Deliveries, No processing, Observer present								
		04	09	2	1	517	7	253	198127	lb	45978	023078
✓	✓	04	10	3	1	517	6	270	215639	lb	56153	023080
	✓	04	10	4	1	517	12	258	165663	lb	34931	023081
		04	11	No Deliveries, Did Process groundfish, Observer present								
✓		04	12	5	1	521	9	132	258165	lb	45978	023082
	✓	04	13	6	1	521	5	143	264643	lb	56153	023085
✓	✓	04	14	7	8	515	12	1440	8349	lb	17402	023084
				Example from plant that weighs in MT:								
✓		07	09	111	2	521	4	252	98.7	MT	34931	048192
✓	✓	07	09	112	1	521	6	290	87.3	MT	5615.3	048193

You can find ADF&G boat numbers on the NMFS vessel and plant logbook pages. The Coast Guard number (CG#) and/or Permit number *only need to be recorded if the vessel does not have an ADF&G boat number.*

3. Place a check mark in the far left column to indicate which deliveries you sampled for length frequencies or assisted a vessel observer. (Remember, you must enter one or more lines of data for each delivery and each day, not just the ones that you were able to sample.) Then check mark the "Observer Onboard" column if the vessel delivering catch has an observer assigned to it.

4. **Delivery date:** Enter the date of completion of each delivery to the processing plant i.e., if the catch is delivered over a period of two or more days, use the date when the transfer of fish to the plant is completed. It is the *delivery* date of fish measured and sampled that you should use on Forms 7US and 9US. This will not necessarily be the date you sampled.

   The delivery date should coincide with the date that is used in the NMFS processing plant logs and on the ADF&G fish ticket. If a discrepancy with their entries is minor, such as the starting-of-delivery date instead of the completion date, ignore it. If the discrepancy is more than that, document **who's** responsible, **what** is being entered, **when** and **why**.

   When vessels deliver to more than one plant: If you discover that a vessel is delivering fish caught in one trip to more than one plant, you should enter Form A information on only one set of Form A's, preferably the Form A's for the plant where most of the catch was delivered. Note on the back of Form A, or on an attached sheet, the amounts of fish delivered to each plant, but enter on the Form A the total amount delivered to all of the plants, the total amount of sample species delivered to all of the plants, and the total number of tows made during the trip. Additional guidelines for sampling these deliveries follows in the "Sampling Instructions" section.

5. **Delivery number:** Delivery numbers for each plant should be sequential and unique. Do not split delivery data due to fishing in two areas. Refer to instructions below for the NMFS area number. On Forms 7US and 9US the date and "Set/haul no." must correspond with the date and delivery number on Form A.

6. **Gear type:** Enter the appropriate code.

1 = non-pelagic trawl	6 = pot or trap gear
2 = pelagic trawl	7 = jigging vessel
3 = unknown or mixed trawl haul	8 = longline gear
4 = pair trawl	9 = gill net
5 = shrimp trawl	10 = Scottish seine

   If you are unsure of the gear type, take notes, leave this column blank for the time being, and discuss it with NMFS staff.

13. **Species code:** This is the species composition code number (not the report group code!) for the main target species of the delivery. This is usually the species you measure for length frequencies. Subsequent information on the line refers to this species. If there is more than one fish they were **targeting**, an additional line of entry is made out. See the example for delivery number 45. Do not record all species listed on the fish ticket for the delivery. Generally, do not enter a species which makes up less than 25% of the catch delivered. An exception would be when in a multiple target fishery such as the Gulf shallow water flatfish. Then enter a line of data for each species making up the top 75% of the catch by weight.

14. **Main product:** Enter the code for the main or primary product that is made by the plant from the species coded in the previous column. If the plant is making surimi out of pollock and also taking roe from mature female pollock, list the main product as surimi. (Refer to the "List of Alaska Product Types" in the appendix of the manual or in the ship's logbooks.)

15. **Possible length or sex bias? (Y or N):** This question refers to whether or not any individuals of the species indicated were sorted prior to your sampling for sexed length data. Fishermen might discard undersized individuals, or fish of a given sex. Fish may not be sorted out of the catch but just into different holds before delivery. This would also affect your ability to take an unbiased sample and would warrant a "Y" in this column. This question *does not* refer to any sorting and discarding of other species, such as prohibited species or some other, unwanted species. You can check the NMFS ship logs for this information but it would be best to ask the vessel's observer if any, or ask one of the crew.

16. **Weight of target species discarded at sea:** If target fish were removed from the catch prior to delivery for any reason, indicate the approximate amount in lb or mt. The units (lb or mt) must be the same as those used for delivery weight. Target discard may be due to sorting, or because the holds were topped off and catch was dumped, or because the plant wouldn't accept a deck load. This information might be in the NMFS logs but is notoriously under-reported.

17. **Round weight of target species delivered, Lb or mt:** If cut or bled fish are delivered, calculate an estimate of their round weight with a product recovery rate. Weight of target fish delivered can be obtained from the ADF&G fish tickets but is very possibly inaccurate or adjusted for "water weight" when there was no standing water on the scale. The weight of undersized fish may not be recorded on the ticket if the boat doesn't get paid for them. Be careful of weight totals on the ticket, the weight total may only be of "money fish". As possible, sum the scale weights yourself, either at the scale or from a paper readout of the tote weights. If there is a digital scale system, yet there are people who add up the tote weights of a delivery, question why.

CHECKING DELIVERY INFORMATION

After having collected Form A delivery information, the NMFS Plant Daily Cumulative Production Log should be checked daily for comparison. This log is used to prepare the plant's Weekly Production Report, which is essential in the in-season management of the catcher-boat fleet. It is thus important that all catch and discards are accounted for in the log as best as is practical.

Part B of the Production Log should be checked for the date of delivery, catcher vessel name, ADF&G number, and the groundfish delivery weight. Any discrepancies should be questioned and noted in the observer's logbook. (Minor discrepancies such as the start-of-delivery date instead of the completion date should be ignored.) Discarded Species Information (Part D) should be looked at just to verify that the NMFS plant log reflects the species groups which you know to have been caught and discarded by the boats (code 98) and/or the plant (code 99).

SAMPLING INSTRUCTIONS

Assisting Catcher Vessel Observers With Sampling:

Plant observers must meet vessels coming in for delivery to get fishing information for the Plant Delivery Form and to meet with each vessel observer every time they're going to sample at the plant. Even if the vessel observer claims they "can handle it," talk the situation over with them. Assisting the vessel observers is a primary duty, second only to collecting delivery information. Assistance includes obtaining delivery weight information for the vessel observers, sending catch messages and helping observers sample for species composition. During pollock deliveries to Dutch Harbor for example, observers will usually sample a whole delivery for prohibited species that may take anywhere from 12 to 20 hours to complete. The plant observer should relieve the boat observer for several hours (depending on the length of the delivery) for meals, rest, or to complete catch messages.

Take the initiative to show the vessel observer how to work together and to arrange the schedule. If you're covering more than one plant, or more than one vessel is delivering at a time, it may be necessary to coordinate delivery assistance between plants or boats to ensure that observers with long deliveries have help. Establish a message board or system so plant and vessel observers can communicate with each other. Check it frequently when vessel observers are in. This is especially helpful for vessel observers who cannot send their own catch messages because of office hours or quick vessel departures.

When sampling for composition at a plant, vessel observers (and plant observers assisting them) must not rely on plant personnel to sort, save and or count fish unless they are working under the immediate supervision of the observer. Do not use weights of non-target species that are recorded in the ADF&G Fish Tickets or the "Alaska Groundfish Daily Cumulative Production Logbook" *for species composition.* These logs can be useful for comparison of figures, but they cannot be used as a substitute for an observer's sampling effort. The sorter's figures for weights of bycatch may be used to obtain delivery weight however.

sample catch from different parts of the hold), but enter the cruise number, plant code, and delivery number on the Form 7 and 9US's corresponding to the Form A where the delivery is recorded. (Refer to "When vessels deliver to more than one plant" in item 4. above.) Note what you did on a non-keypunched portion of the forms. The two or more length frequency samples from the different plants may be kept as separate length frequencies on the Form 7US's--the computer can add them together if necessary, or they may be analyzed separately for variance.

Age Structure Collection:

Observers are asked to collect up to 100 age structures per plant per month, when working at a plant that requires 100% observer coverage. When sampling at plants that require only 30% observer coverage, the observer should collect up to 200 age structures per plant per three month period.

Age structure collections should be stratified/random collections (5 per cm. per sex) of a single species per month unless otherwise instructed. You may change the length and otolith sample species to another target species when you begin a new month.

As with form 7US, put the name of the catcher boat that delivered the sampled fish in the top margin of Form 9US. The delivery number will substitute for haul number on the form. The date is the delivery completion date which will correlate with the Form A. This may or may not be the date the fish were sampled.

The "roundfish" species of the highest priority for age structure collections are: Pollock, Pacific cod and all rockfish species including thornyheads (Sebastalobus spp.). ***If age structures are collected from Pacific cod, remember to collect both a scale sample and the otoliths, and put them together in the same vial.*** Do not collect age structures from sablefish. The flatfish species of most importance are listed below in order of priority:

Bering Sea	Gulf of Alaska
Yellowfin sole	Rock sole
Rock sole	Flathead sole
Flathead sole	Rex sole
Alaska plaice	Dover sole

If you have collected lengths from more than one species in a month, do not split your age structure collection between the two species. Collections are of most value if they consist of about 200 age structures for any one species. If you begin an age structure collection and then find out that the species that you are collecting lengths and age structures from is no longer going to be delivered, you have a decision to make concerning whether or not to keep the partially completed age structure collection. The rule of thumb to use in making this decision is: if the collection contains more than 50 age structures, go ahead and keep it, and use the remaining empty vials from that collection for another species; conversely, if the collection contains less than 50 age structures, dump it and use the entire collection of vials for a new species.

WEEKLY PLANT REPORT

Each week, please record a new line of entry for each plant you worked at that week. Record the plant name and location, whether it is a 100% or 30% plant (if known) and the week ending date. Then, list each date of coverage within that week (for each plant) and from that, the total number of days of coverage for that week. ***For plants, a coverage day is defined as any day on which a plant receives groundfish <u>and</u> some work is performed by an observer***; i.e. collecting Form A information, helping a vessel observer, doing length measurements, product recovery tests or density sampling.

Cruise No. 3926 Plant Code F0222

Observer Name Jamahl Observer

Plant Name & Location Kodiak	100% or 30% Plant?	Week End Date	List Each Date of Coverage for the Week	Total Days of Cov - erage in Week
All Alaskan	100%	5/8	5/5 - 5/8	4
King Crab F1929	30%	5/8	5/4, 5/6	2
All Alaskan	100%	5/15	5/9 - 5/15	7
King Crab	30%	5/15	5/11, 5/12, 5/14	3

OBSERVING IN MOTHERSHIP OPERATIONS

For observer program data handling purposes, a vessel is described as a mothership if it receives unsorted catch via codend transfer for at-sea processing. There are basically two kinds of motherships. Your vessel may operate solely as a fish processor for smaller catcher-only vessels (as is the case for the Ocean Phoenix), or it may only occasionally accept a codend transfer in the midst of its own tows. There are trawler motherships and one longliner (New Star) which process codends from delivering trawlers. Deliveries by codend transfer to motherships are recorded on Form 2US and get sampled using the same criteria as any other catcher/processor haul.

You must first determine if your vessel is considered a mothership or a floating plant. If your vessel ***routinely*** accepts catch which *could have been sorted*, it is a floating processing plant, commonly referred to as a "floater." The Northern Victor, Arctic Enterprise and the Yardarm Knot are floaters. Deliveries to floaters, like shoreside plants are logged on Form A, the Plant Delivery and the Delivery Composition Forms. (Refer to the instructions for plant observers in the previous section.) If a catcher/processor or mothership ***occasionally*** pumps or brails fish from the holds of the catching vessel, or takes catch from longliners or pot vessels, that catch *may have been sorted* and the delivery data should be recorded on the 2US with a vessel code of 4. Deliveries which could have been sorted are not sampled for composition by the observers on the processor. Deliveries of unsorted catch, via codend transfer, get recorded on Form 2US with a vessel code 2 and are sampled as usual.

MOTHERSHIP HAUL DATA

For the 2US form, enter a line of data for all hauls taken or delivered. Any days without haulbacks or deliveries must have an entry for noon position; see 2US form instructions. All days, from the day you board until you disembark, must be accounted for with a noon position. data on catch, or for in-port days, a note and date. If the mothership is also a catcher/processor vessel, fill out only one set of 2US forms with tows and deliveries listed one after another, in the order in which they occur. (See the 2US example page, bottom half.) To distinguish between hauls towed by your vessel and codends delivered, the "vessel type" will usually be "1" or "2" and entries must be made in the column "Catcher boat's ADF&G #." List "self" in this column for hauls your own vessel fished, and when codends are delivered list the ADF&G boat number of the catcher vessel. Also, at the top of the first page or two of the 2US form, list the vessel names and corresponding ADF&G vessel number for all catcher boats delivering to your ship. One list on the first page or two is all that's needed, not a list for each page!

Observers on motherships should enter codend retrieval positions on the 2US if at all possible. If retrieval positions are not available from delivering catcher boats, enter "D" in the location code column on 2US and list the position of the mothership at the time of delivery. Information on gear type, gear performance, retrieval location, fishing times, fishing and bottom depths, and average towing speed will have to be obtained from the delivering skipper (or an observer aboard, if any), usually by radio. Often, your ship's bridge officers obtain the data from the delivering vessel; sometimes you may have talk to the delivering skipper via radio; sometimes the

SAMPLING AND CATCH MESSAGES ON MOTHERSHIPS

The observer on a mothership selects hauls to be sampled according to the random sampling table or, in the hake fishery, the observer randomly selects the hauls to sample and keeps a histogram of sampling effort. Follow the same sampling guidelines and use the same data forms as a regular catcher/processor observer. Though some tows have been delivered by catcher vessels and some may have been caught by your own mothership, if they are all *unsorted* tows, you may sample them in the regular manner. If a delivery comes to your mothership *which has been or could have been sorted*, on 2US the vessel type is 4 and you do not sample it for composition.

The are three large motherships, the Ocean Phoenix, Excellence, and Golden Alaska, which do not fish as catcher/processors, instead they stay near the fishing grounds of their catcher boats and take 9 to 14 unsorted codends in a single day. On these vessels, it is sometimes impossible for the observer to follow a Random Sampling Table in sampling deliveries, and get other duties accomplished as well. For these motherships, the observers may have to readjust their sampling schedule according to the duties priorities. The most important duty of a mothership observer is recording the delivery information for every delivery. Sending catch messages and any requested daily messages is next in importance. Monitoring for the incidence of prohibited species is also more important than sampling the delivery for species composition (meaning you may sample whole or partial hauls for prohibs and drop to basket sampling for all else when time constrains). Lengths and special project collections may have to be cut back, as they are of lesser priority. If you cannot follow the prescribed species composition sampling routine, log which hauls you skipped sampling and record the difficulties you encounter in completing normal duties in the daily notes section.

Follow these rules for recording monitoring for marine mammals on the 2US form: If you have watched the entire dumping of the codend on your mothership, you should record the haul as monitored for marine mammal take. If there is a catcher vessel observer, you should contact them to find out if any mammals were deterred or caught during the net retrieval and sorting (this can be done when you request information on haulback location and times, your split of the duration, etc.). If there is no observer aboard, ask that any marine mammal interactions be reported to you by the vessel, either in your or your ship manager's calls to the ships.

After filling out 3US and 7US forms for all the sampled hauls, create inseason catch messages CMA and CMB and the Halibut Viability Form. The halibut form will contain a summary of all of the halibut you sampled for viability for the week, regardless of whether hauls were from various deliveries and various vessels or your own ship's tows. You do not separate halibut viability data.

Mothership observers **must** separate the data for delivered unsorted codends versus mothership-caught hauls on the CMA and CMB forms. A mothership is assigned two processing codes, one for its catcher/processor operations and another for its delivery processing operations. NMFS Observer Program assigns the processor code to the appropriate hauls. Therefore, you have to inform NMFS which hauls came from each source by indicating the catcher boat's ADF&G numbers in the column labeled as such, or writing "self" in that column for mothership-caught hauls. On the catch messages, you must combine "self" towed hauls on one CMA and CMB and combine all of the delivered hauls on another set of CMAs and CMBs. You do not need to separate the hauls by individual vessel delivering to your mothership on CMA and CMB forms. Send all sets to NMFS.

CATCH MESSAGE INSTRUCTIONS

One of the primary tasks of the Observer Program is the estimation of the catch of groundfish and prohibited species throughout the year to insure that these catches remain within the quotas established by the management councils. To account for each observer, and in order that the observer's data may be utilized before returning from sea, each observer must send a catch message each week to the NMFS Observer Program office in Seattle summarizing the observer's activity when no fishing occurs or the week's fishing activity and sampling data. The first page of the message will be the Form 1US or 2US to provide the fishing area, gear type, effort, catch etc. The Catch Message Form A will give the species composition data for each sampled haul, and the Catch Message Form B will provide data specifically on the samples for prohibited species, and for trawlers, a marine mammal catch report. The Halibut Inseason Viability Form is the last page of each message. It summarizes the number of halibut in each condition category in samples for the week. For weeks of no fishing, a 1US or 2US form with transit information or a note on plain paper will suffice.

Section 6 Topics:

THE REPORT WEEK

The Observer Program office in Seattle gathers and processes inseason catch report data and sends a weekly report to the Regional Office in Juneau. The Regional office does some further processing and uses these data to monitor the progress of the fisheries and to close them before overfishing occurs. These data are compiled by report week and if necessary, by day. For Alaskan waters, **the report week is SUNDAY through SATURDAY**, Alaska Local Time and date. You must send us the data for each Sunday through Saturday time period on the following Sunday or Monday. If your data are not in on time, information critical to the decision making process is missing but the decision must be made anyway. Late reports are the reason why fisheries may have to reopen at a later date and why overfishing sometimes occurs. (If your vessel goes into the Washington, Oregon, and California coastal area to fish, obtain a packet of instructions for that area.)

Observers on all vessels (and plants) except catcher-only vessels must send their messages on Sunday or Monday. Observers on catcher-only vessels are to send their messages trip-by-trip, after each delivery. However, when trips are short (1 to 2 days) consolidate transmissions to two per week. Catcher-only vessel data may lag one trip (or at the most, one week) behind. Catcher boat observers transmit their messages from the processor delivered to. If your catcher-only trawler, longliner or pot vessel will be making longer trips of ten to twelve days, call or send us a message to let us know when to expect your catch report message.

Catch messages are critical and must be sent on time. Therefore, when messages are not being received from a vessel, that observer's certification may be suspended and a vessel without observer coverage may not legally continue to fish. If your catch messages are due, do not start new samples or trips until the catch message has been sent. If there is no data for a week, or the catch message is not ready, there is a difficulty in transmission, or other problem, call or send us a message informing us of that. **We want to hear from each observer every week even if no fishing occurs.** When asked to repeat a message, please do so immediately and do not wait until the end of the week.

WHEN TO START A NEW SET OF CM FORMS

The Catch Message A and B Forms will comprise one data set, compiled and numbered for the vessel in the same order in which they were sent. When there are many hauls or sets per week, you'll fill out two CMA's for each CMB simply due to the number of lines on these forms. C/p and mothership observers: start each week's data (Sunday - Saturday) on a fresh sheet of each of these forms. Catcher vessel observers: start a new pages of CMA and CMB for each fishing trip. Record the hauls or sets making up each delivery together. Even if a fishing trip spans a report week (over midnight, Saturday), report the hauls for that trip together in one catch report, on one pair of forms.

listen in. You must remember that radiotelephone conversations are public. Do not directly state information such as fishing area or catch weights. As catch information must be kept confidential, radiotelephone catch messages must be coded according to instructions on the CMV form. Using codes would also be appropriate if it is necessary to make daily reports to a lead observer or to relay catch information for one vessel after transferring to another vessel. When reading the alphabetic codes for the numbers, use the phonetic alphabet for clarity (given in the appendix section titled "Radio Communications - Procedure"). Any transmission of data by voice must be followed up by faxing your report forms to the Seattle office as soon as possible after docking. In your logbook, record all your transmissions in the Communications Record and keep a copy of all messages received.

CORRECTIONS AND QUESTIONS

Along with catch reports or at any time, observers can ask questions or send information relating to observer work. For example, if you have no catch report for a week, you can type a text message or fax us a plain piece pf paper with your name, vessel name, and the week ending date as a heading and just say, "Boarded vessel (mo/day), still in port, no catch report this week." If you have a correction to data previously sent, send it as a separate text message or fax it on a plain piece of paper. Tell us: Your Name, Vessel Name

Correction for Week Ending Date (month, day)
Haul or Set number:
Original entry:
Corrected entry:

Questions about observer sampling or responsibilities, information about health problems, or logistical information are commonly sent. When asking sampling questions, include parameters such as target species, average catch size, composition, and the sources for your estimates to help us understand your situation. A question or information should be written carefully so it is clear, not too wordy, appropriate and professional. Realize that you may not receive an answer for several days even though answering your questions is a top priority for us. We commonly have a hundred or more observers at sea at any one time. It takes time for messages to be received and for replies to be formulated and sent.

CMA FORM INSTRUCTIONS

A catch message is *at least* composed of the pertinent pages of Form 1US or 2US, CMA and CMB, and the Halibut Inseason Viability Form. Two lines of information will be entered for each haul sampled on the Catch Message A Form. *Do not make an entry line for hauls or sets not sampled for composition.* The first line must be equivalent to the data on 3US for the target and bycatch sample, and data on the second line are your estimates of retained catch for each report group.

1. "Page ____ of ____ for vessel" in the upper right corner is a consecutive numbering of all the combined CMA **and** CMB forms for that boat--all sets of CM's, all weeks, with the CMA's and the CMB's mixed together in the same sequence in which the forms were transmitted. The CMA and CMB forms are two parts of a whole unit of CM forms for the boat so their page numbering is combined.

2. On the second heading line, in the "Page ____ of ___ for the Transmission," enter the total number of pages that you have for that transmission, including the haul or set forms, CMA's, CMB's, and the Halibut Inseason Form. Then we can be sure we've received all the pages you intended to send.

3. In the next blank write the fax or telex number of your vessel so we can get back to you with questions, if necessary. If you are on a shoreside delivery vessel, enter the fax or telex number of the plant where you can be reached.

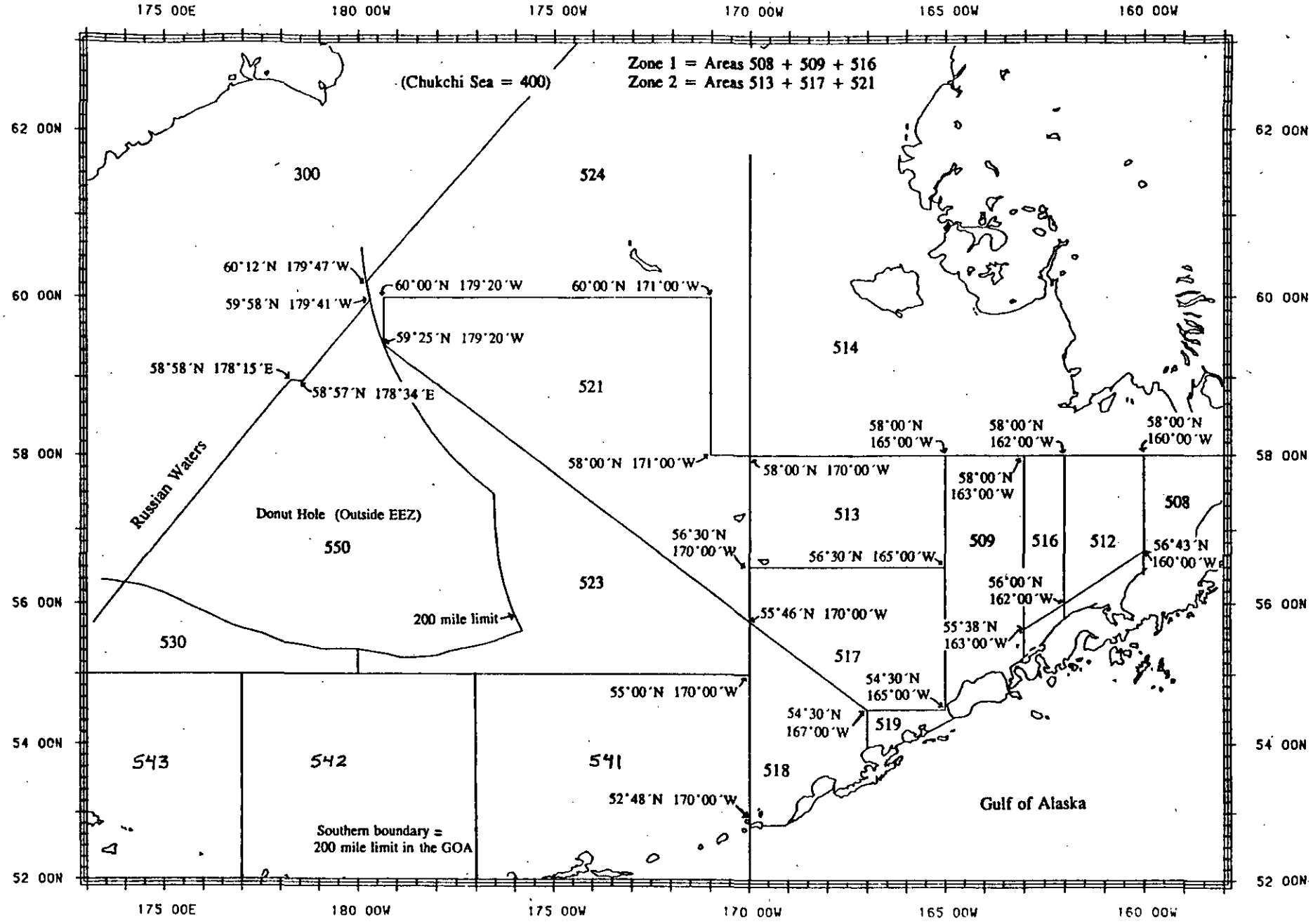
4. Circle "Weekly Message." For various reasons, you may be sent a message from the Observer Program office in Seattle asking you to resend catch message forms. In this case, erase the circle around "Weekly Message" and circle "Resubmission of Message" instead.

   If you need to inform us of a correction *you have discovered*, it must look different or it may be processed as a regular report. Send your corrections on a separate, blank page or text message. Include your name, vessel name, date and haul number concerned, old value and new, corrected value.

5. If the hauls or sets of a report week were fished in both the Bering Sea and the Gulf of Alaska, two sets of catch message forms would have to be made, by region. Determine which region your hauls or sets were made in (if necessary) by plotting their positions from Form 1US or 2US on the maps which follow. Select the appropriate list of report groups by region. For each species recorded in the sample for target and bycatch on 3US, refer to this list and find the corresponding report group and its code.

   Write the report group abbreviations and codes across the tops of the columns. For subsequent samples, additional report groups may need to be added. Be sure to go back and "zero fill" as necessary, refer to item 8 below. **For each set of forms for a week (or trip), all pages of CMA must have the same report groups, in the same order.**

6. **Two lines of entries must be made for each sampled haul or set.** No lines of entry are needed for hauls or sets not sampled. Days of no fishing or sampling are accounted for on the Forms 1US or 2US. For each haul sampled, enter the haul (or set) number in the first column.


175 00E
180 00W
175 00W
170 00W
165 00W
160 00W
62 00N
60 00N
58 00N
56 00N
54 00N
52 00N
Zone 1 = Areas 508 + 509 + 516
Zone 2 = Areas 513 + 517 + 521
(Chukchi Sea = 400)
300
524
514
521
550
523
530
543
542
541
513
509
516
512
508
517
519
518
60°12'N 179°47'W
60°00'N 179°20'W
60°00'N 171°00'W
59°58'N 179°41'W
59°25'N 179°20'W
58°58'N 178°15'E
58°57'N 178°34'E
58°00'N 171°00'W
58°00'N 165°00'W
58°00'N 162°00'W
58°00'N 160°00'W
58°00'N 170°00'W
58°00'N 163°00'W
56°30'N 170°00'W
56°30'N 165°00'W
56°43'N 160°00'W
56°00'N 162°00'W
55°46'N 170°00'W
55°38'N 163°00'W
55°00'N 170°00'W
54°30'N 165°00'W
54°30'N 167°00'W
52°48'N 170°00'W
Russian Waters
Donut Hole (Outside EEZ)
200 mile limit
Gulf of Alaska
Southern boundary =
200 mile limit in the GOA

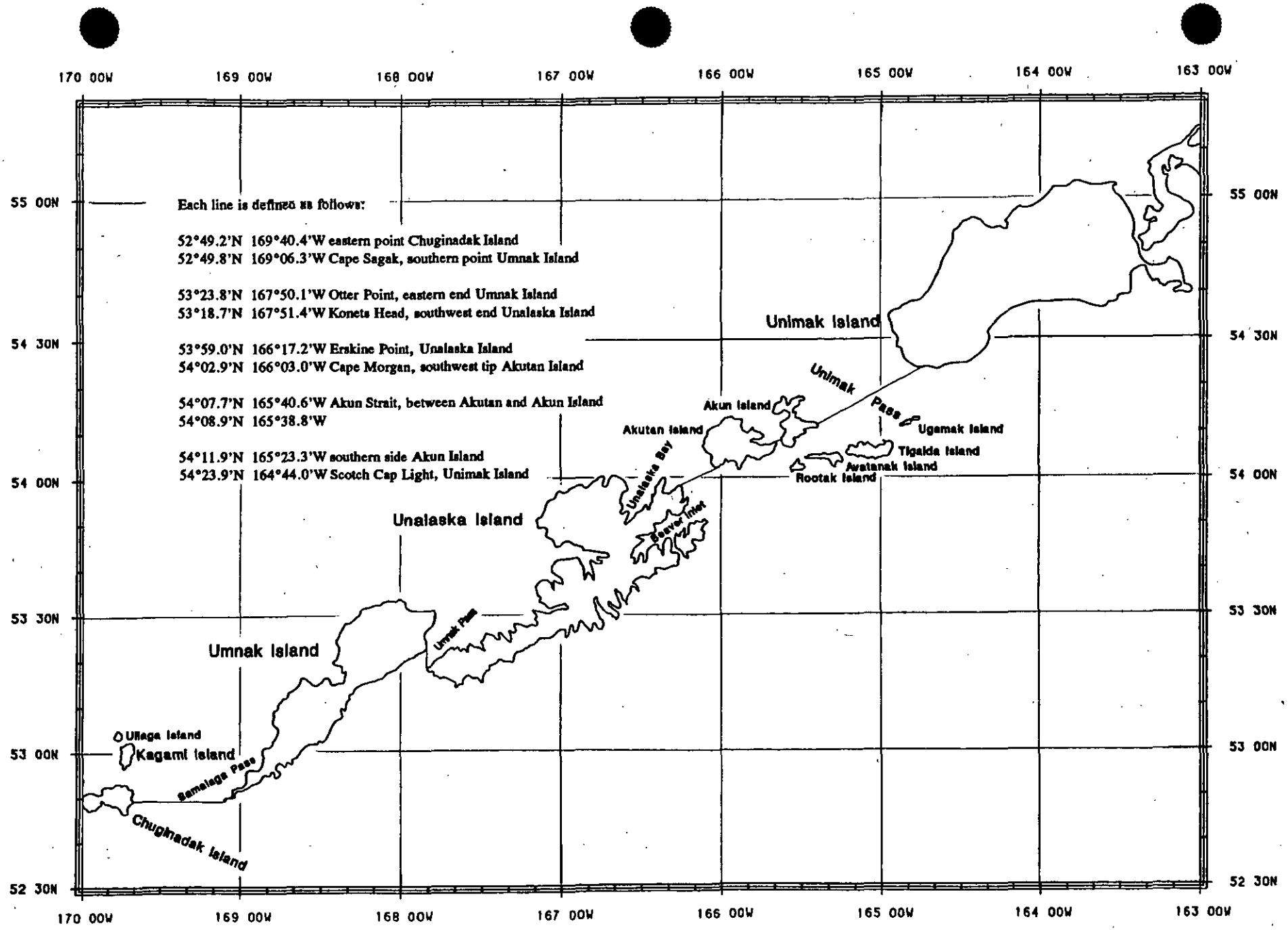


Figure 1 - boundary between Bering Sea and Gulf of Alaska.

GULF OF ALASKA REPORT GROUPS AND CODES

Species Group	Report Group	Abbreviation	Code
Rex sole	Rex sole	rexs	125
Dover sole Greenland Turbot	Deep-water flatfish	dflt	118
Flathead sole	Flathead sole	flat	122
Arrowtooth flounder	Arrowtooth flounder	arrow	121
Rock sole Yellowfin sole Butter sole Starry flounder All other flatfish (except halibut)	Shallow-water flatfish	sflt	119
Pollock	Pollock	poll	270
Pacific cod	Pacific cod	cod	110
Sablefish	Sablefish	sab	710
Atka Mackerel	Atka mackerel	atka	193
Pacific ocean perch (S. alutus)	POP	pop	141
Rougheye rockfish (S. aleutianus) Shortraker rockfish (S. borealis)	Deep-water rockfish	deep rf	171
Northern rockfish (S. polyspinus)	Northern rockfish	nork	136
Sharpchin rockfish (S. zacentrus)	Sharpchin rockfish	chin	166
Red banded rockfish (S. babcocki)	Redbanded rockfish	rbnd	153
Longspine thornyhead (Sebastolobus altivelis) Shortspine thornyhead (Sebastolobus alascanus)	Thornyhead rockfish	thrn	143

Cruise # 4011 Vessel code A110 Vessel Name Sea Peace CMB - PROHIBITED SPECIES Page 6 of _____ for vessel

Observer Name Jane Observer Page 3 of 4 for transmission (Weekly Message) or Resubmission of Message

HAUL NUMBER	SAMPLE WEIGHT IN MT	RED KING CRAB NUMBER	RED KING CRAB WEIGHT KG	OTHER KING CRAB NUMBER	OTHER KING CRAB WEIGHT KG	SAMPLE WEIGHT IN MT	HERRING WEIGHT KG	SAMPLE WEIGHT IN MT	BAIRDI TANNER NUMBER	BAIRDI TANNER WEIGHT KG	OTHER TANNER NUMBER	OTHER TANNER WEIGHT KG	SAMPLE WEIGHT IN MT	PACIFIC HALIBUT NUMBER	PACIFIC HALIBUT WEIGHT KG	SAMPLE WEIGHT IN MT	CHINOOK SALMON NUMBER	CHINOOK SALMON WEIGHT KG	OTHER SALMON NUMBER	OTHER SALMON WEIGHT KG	Marine Mammals code	Marine Mammals #
48	.331	0	0	0	0	.331	0	.331	7	2.21	0	0	.331	0	0	.331	0	0	0	0	NU	
49	17.530	↓	↓	↓	↓	17.530	0	17.530	629	100.0	28	4.24	17.530	14	208.99	17.530	0	0	0	0	EJ	1
50	21.709	↓	↓	↓	↓	21.709	.3	21.709	0	0	0	0	21.709	0	0	21.709	0	0	1	3.2	NU	
51	54.408	0	0	0	0	18.923	0	18.923	0	0	0	0	54.408	0	0	54.408	0	0	0	0	NU	

An excerpt from the observer logbook. (Refer to the example 3US data form for haul 49 in manual section 3.):

ADDITIONAL CALCULATIONS

VESSEL/PLANT NAME Sea Peace

Haul 49 Crab Extrapolations:

Bairdi Wt.: 5.44 kg males + 8.7 kg females = 14.14 kg bairdi + 0.6 kg opilio = 14.74 kg total subsample wt.
14.14 kg bairdi ÷ 14.74 kg subsample x 89.5 kg unident. = 85.8568 kg bairdi + 14.14 kg subsample = 100.00 kg. est. bairdi in haul

Bairdi No.: 32 males + 59 females = 91 Bairdi + 4 Opilio = 95 tanner crab in subsample.
91 bairdi ÷ 95 in subsample x 562 unident. tanners = 538.34 bairdi + 91 bairdi in subsample = 629 est. bairdi in haul

Other tanner Wt.: 0.6 kg opilio ÷ 14.74 kg subsample x 89.5 kg unident. = 3.6431 kg opilio + 0.6 kg in subsample = 4.24 kg estimated opilio in haul

Other tanner No.: 4 Opilio ÷ 95 in subsample x 562 unident = 23.66 opilio + 4 in subsample = 28 estimated opilio in haul.

Math Check → **For Weight:**
100.00 kg Bairdi + 4.24 kg Others = 104.24 kg tanner in haul.
What is the total wt. of tanner crab on Form 3US?
(0.43 + 0.17 + 5.44 + 8.7 + 89.5 kg = 104.24 kg✓)

For Number:
629 Bairdi
+28 Other
657 Tanner in haul

What is the total number of Tanner crab for haul 49 on 3US?
(3 + 1 + 32 + 59 + 562 = 657✓)

Report Group	Species Included
PACIFIC HALIBUT	Pacific Halibut
CHINOOK SALMON	Chinook Salmon
OTHER SALMON	the other species of salmon including steelhead

8. Enter the number of prohibited species found in your prohibited species samples for each of the prohibited species report group and their weight. (For herring just report the weight.) Do not enter the number of any salmon that did not occur in your sample weight, that is, catch weight that you sorted or directly supervised the sorting of.

   If you subsampled a prohibited species group, you need to proportion the unidentified salmon or crab based on the relative numbers and weights of species in the subsample. Using the first haul of the 3US example forms, the calculations that should appear in the observer logbook are shown below the CMB form. There is no column for "unidentified tanner crab" on CMB. So, what number and weight of the unidentified crabs listed on the 3US would have been Bairdi and "other" tanner crabs, based on your subsample? Notice that the crab *numbers and weight are proportioned separately.* Using this method, less rounding difference is introduced. Notice also that the "other" tanner *numbers and weights are not obtained by subtraction.* When the second group is obtained by subtraction, it is not likely you would discover a math mistake in the first calculation. The sum of species numbers and weights on CMB must sum exactly to the total numbers and weights of these species on the 3US. Check your data before they are used by NMFS to manage the fishery!

9. **If no members of a particular prohibited species report group are seen, then enter a zero (0) in each of the number and weight columns.** It is permissible to use arrows for continuation of the zero down a column. Enter a zero at the top and a wavy arrow and another zero at the bottom of the arrow, just as is done for other forms.

10. **Observers on trawlers** must report incidental kill of marine mammals in hauls randomly chosen for monitoring. If none were killed, it is important to record that there were none. **Only freshly dead or "lethally removed" mammals that are landed in monitored hauls (hauls randomly chosen) are to be listed.** For these catches of marine mammals, designate the species with the two letter species code given in the instructions for Form 10US. In the last column, report the number of these mammals. (This is for trawl catches only. Observers on longline and pot fishing vessels must leave these columns blank.)

HALIBUT INSEASON VIABILITY FORM INSTRUCTIONS

Inseason Halibut Viability Form

Page 4 of 4 for the transmission

Observer Name Jane Observer

Vessel Name Sea Peace

Fax to:
Domestic Observer Program
(206) 526-4066 or
(206) 526-4207

Office Use Only Cruise # Permit # Proc. Code

BSA or GOA	Week Ending Date	Number of Halibut Excellent	Number of Halibut Poor	Number of Halibut Dead	Total Halibut Examined	If IFQ, Were Halibut Retained? Y or N (Non IFQ, Leave Blank)
~~BSA~~	~~8/30~~	~~12~~	~~16~~	~~22~~	~~50~~	
BSA	9/6	8	6	2	16	

The halibut data on the Halibut Inseason Viability Form is used by the International Pacific Halibut Commission. Scientists in the Halibut Commission need to have the data on a weekly basis to derive how many of the excellent, poor and dead halibut to count as total mortality for that fishery, for that week. Sample data is extrapolated to hauls and vessels not sampled. The figures you provide will help determine how much of the prohibited species cap has been taken to date. Include this form as the last page of each weekly catch message sent. It is only necessary to send the viability form data with your weekly or trip catch message. You do not need to send this form along with any daily catch messages, unless requested. NMFS in Seattle is forwarding the data to the Halibut Commission.

1. Enter data for only one boat per page. Go to a new form for each new sampling vessel.

2. Record your name and vessel name at the top. In the first column, record the region fished in this week. BSA = Bering Sea-Aleutian Islands and GOA = Gulf of Alaska. If your vessel fished in both regions within a week, you will have to separate your data for the Bering versus the Gulf and enter two lines of data for the week.

3. The week ending date is always a Saturday. When assigned to a catcher vessel, use the Saturday date of the week your vessel *delivered.* This may be in the next week after the fishing trip.

4. **When entering data for a new week, please draw a single line through other weekly data already sent.**

Typed Message Format for Form 1US

FORM 1US - CATCH SUMMARY FOR LONGLINE AND POT VESSELS

Cruise number	Vessel code	Year
4822	A413	97
721 ORC		

Observer Name Olivia Observer

Vessel Name F/V Swell

Page 1 of ____ for transmission

Page 1 of ____ for vessel

Plant/Processor name	Location	Processing code #
Akutan Fish Co.	Akutan Is	F0040
*(for pot boat example)		

Sets sampled for composition	Date: Month	Date: Day	Set #	$ Monitored for marine mammals	Gear type	Gear performance	Vessel type	Location code	End position of set: Latitude (N)	E or W	Longitude (100)	Soak time hrs	min	Avg. bottom depth	M or F	# of skates or # of pots in set	Skate length or pot set length	# of hooks or pots per skate	Total hooks in the set	Official Total Catch in metric tons	Observer's Total Catch Estimate in metric tons	Vessel's Total Catch Estimate in metric tons	Processor code	CDQ/IFQ number
	10	21	0					N	5530	W	6845	No Fishing - rough weather								.	.	.		
																				.	.	.		
✓	10	22	7	50	8	1	1	R	5534	W	6842	10	45	325	F	10	300	140	1400	2.80	2.80	2.00		
✓	10	22	8	60	8	1	1	R	5542	↓	6842	12	10	285	↓	10	↓	↓	1400	1.95	1.95	1.00		
✓	10	22	9	70	8	1	1	R	5528	↓	6821	12	20	165	↓	10	↓	↓	1400	3.64	3.64	2.00		
																				.	.	.		
	10	23	10	0	8	1	1	R	5456	↓	6711	11	50	186	↓	10	↓	↓	1400	2.80	.	2.20		
✓	10	23	11	80	8	1	1	R	5524	W	6802	13	20	127	F	12	300	140	1680	3.40	3.40	2.80		

Form 1US appearance in Typed Message format:

Olivia Observer F/V Swell

```
//10/21/0/////N/5530/W/6845/No fishing - rough weather
Y/10/22/7/50/8/1/1/R/5534/W/6842/10/45/325/F/10/300/140/1400/2.80/2
.80/2.00///
Y/10/22/8/60/8/1/1/R/5542/W/6842/12/10/285/F/10/300/140/1400/1.95/1
.95/1.00///
Y/10/22/9/70/8/1/1/R/5528/W/6821/12/20/165/F/10/300/140/1400/3.64/3
.64/2.00///
Y/10/23/10/0/8/1/1/R/5456/W/6711/11/50/186/F/10/300/140/1400/2.80/0
/2.20/0
Y/10/23/11/80/8/1/1/R/5524/W/6802/13/20/127/F/12/300/140/1680/3.40/
3.40/2.80///
```

Form 2US appearance in Typed Message format:

Jane Observer F/V Sea Peace

```
//08/31/0/////N/5726/6553/No fishing - rough weather
Y/09/01/48/Y/1/1/1/R/5759/W/6531/2215/0045//50/50/F/3.5/22.34/22.34
/C/.89/20.00////
Y/09/01/49/Y/1/1/1/R/5751/W/6531/0730/0915//52/52/F/3.5/17.53/17.53
/C/.87/15.00////
Y/09/01/50/N/1/1/1/R/5751/W/6554/1000/1218//68/70/F/4.0/43.21/43.21
/C/.98/35.00////
Y/09/01/51/Y/1/1/1/R5746/W/6551/1440/1730//66/70/F/4.0/54.41/54.41/
C/.93/58.00////
N/09/02/52/N/1/9/2/R/5746/W/6550//0730/120/70/75/F/4.5/44.24/44.24/
C/.93/45.00/50570///
```

The information in the heading of each form has been sequentially numbered as shown in the previous example. For instance, (1) represents the cruise number. Type the numbers in parentheses before each heading item. The CMA heading will begin with cruise number and end with: (5) the fax or telex number that is your return address. Make sure that you are providing the return address numbers so we can contact you, if necessary and not our office number. Remember, type in the numbers in parentheses before each heading item to identify the entry.

Report group codes are typed in the line following the heading. The abbreviated report group names do not get entered on typed messages but the report group codes are listed, one after the other, with slashes in between. Enter these as a separate line from the species weight data.

The next series of lines have: the haul number, species composition sample weight (with a decimal point and one or two decimal places, no "kg" typed), and the individual species groups weights, separated by slashes. No preceeding zeros are typed for species group weights when less than 1 kg. No slashes are required at the end of the line. Each line of data on the form should be a separate line of type as well. The line of data underneath each line of species weights is the percentage retained for each species report group listed, with slashes between each entry.

Typed Message Format For Halibut Viability Form

Inseason Halibut Viability Form

Page 4 of 4 for the transmission

Observer Name Jane Observer

Vessel Name Sea Peace

Fax to:
Domestic Observer Program
(206) 526-4066 or
(206) 526-4207

Office Use Only Cruise # Permit # Proc. Code

BSA or GOA	Week Ending Date	Number of Halibut Excellent	Number of Halibut Poor	Number of Halibut Dead	Total Halibut Examined	If IFQ, Were Halibut Retained? Y or N (Non IFQ, Leave Blank)
~~BSA~~	~~8/30~~	~~12~~	~~16~~	~~22~~	~~50~~	
BSA	9/6	8	6	2	16	

Before typing this form, please skip down about 10 spaces (hit [RETURN] ten times) to create a large gap between the CMB and the halibut data. Once reaching Seattle, the halibut portion of the catch message has to be cut off the transmission and forwarded to the Halibut Commission.

Example data entry for an observer on a non-IFQ longline vessel:

BSA/ 9/6/ E = 8/ P = 6/ D = 2/ Total = 16

- If you have switched to a new sampling vessel within one week, make a separate catch message report for each boat. On your data forms, go to a new page of the Viability Form for the new vessel.
- If your vessel has fished in the Gulf of Alaska and the Bering Sea in one week, enter separate lines of data for each region.
- If you have found no halibut of a certain condition category, enter a zero for that condition category; do not leave it blank.
- If you did not have any halibut viability sample data for the week, enter the region, week ending date, and Total = 0.
- Remember, "TOTAL" halibut on the form means the number examined for viability. Check this total halibut number against the sum of halibut frequencies listed on 7US for the week. They should be equal.

CM V - Weekly Catch Message Form for Voice Communication

Page _____ of _____ for vessel

Observer Name

NMFS Region

ORC_____
(not coded)

Vessel Name

Gear Type

Week Ending Date

Observer Coverage Days

Check one of the following boxes or fill in name of shoreside plant or floating processor:

Aboard a catcher/processor? ☐

Aboard a mothership? ☐

Catcher boat? Delivering to: _____

1. Summarize data for the week for the target species and for halibut by region and gear type.
2. Transfer totals to the shaded boxes on CM-V.
3. Translate all information in the shaded boxes using codes and enter in adjacent white boxes.
4. Transmit all information in the white boxes via marine operator and radio.

Office Use Only Cruise # Permit # Proc. Code

(1) Total catch for the week in mt	(2) Total of species composition samples in kg	(3) Target Report *Group Code*	(4) Total weight of target species in samples in kg	(5) Total halibut sample weight in kg	(6) Total number of halibut in samples	(7) Total weight of halibut in samples in kg

0	1	2	3	4	5	6	7	8	9

revised 11/92

For vessels with only unsecured voice transmission via SSB radio or highseas radiotelephone operator, use the side of the CMD formatted for voice communication and code the CMD information in fields 7 - 17 using your individual alphabetic code to protect confidentiality. When you are calling the message in, use the phonetic alphabet instead of just saying the letters (see Appendix, Radio Communications). During working hours and using the marine operator you can call the Regional Office collect and ask to speak to someone in the Inseason Management Branch. If you cannot contact the Regional Office, the CMD can be sent through the NMFS field office in Kodiak or Dutch or the vessel will have to pay for a highseas operator call to the Seattle recording machine at night. The contact numbers for these offices are listed at the beginning of this Catch Message Section. As a last resort, relay the CMD through your contractor or the vessel's company office using your alphabetic code if necessary.

Instructions for CMD Form

(1) - (4) At the top of the form record your name, the vessel's name, the species you are fishing for and the date the report is transmitted.

(5) CDQ Number: If your vessel is fishing for Community Development Quota, the contract they are operating under has an identifying number which must be entered on the upper right corner of the vessel log each day. It is possible your vessel could fish for more than one CDQ contract and then separate daily messages must be sent.

(6) Date: Enter the date for the data you are reporting. The notice you receive to begin sending daily reports will specify the date on which daily reports are to start. The fishing day runs from 0001 hours Alaska local time (ALT) to 0000 hours ALT. **YOU MUST ACCOUNT FOR ALL DAYS DURING THE PERIOD OF TIME THAT DAILY REPORTS ARE REQUIRED.** If the vessel did not fish for a particular day, enter the dates and write the reason in the empty data blocks. If the vessel fished but you did not sample, fill in the date, area(s) fished and the total catch weight. Record the reason for not sampling in the empty data blocks.

(7) NMFS Area: Enter the NMFS reporting area (620, 517 etc.) the vessel fished during the day. If the vessel fished in more than one area, use a following line to record the data for the second area. Areas fished are determined by plotting the haul retrieval positions on the area maps provided in this section.

(8) Total Daily Weight: For each area, record the sum of the OTC's of all hauls made in that area/day, sampled and unsampled hauls. Record this even if you did not sample. Record total catch weight in metric tons.

(9) Sampling Method: This column requires that you group your sample data for the day into whole and/or partial haul samples versus basket samples. This grouping is needed for CDQ daily messages and for messages from the whiting fishery but is not required for other fisheries unless specifically requested. It is easiest to note the sampling method from the 3US forms onto the CMA and do all of your sample summations from the CMA form.

TYPED MESSAGE FORMAT: Transcribe data for each day as illustrated in this example. For this example, assume the message to the observer requested dailies on halibut, bairdi tanner crab and POP, and grouping the sampling data by sampling method was <u>not</u> required.

TO: NMFS, Juneau AK. Telex #62296000

(1) Jane Observer (2) Sea Gull (3) POP (4) 09/15
(6) 09/14 (7) 521 (8)74.87 (11)HBT (12)44.507 (13)38 (14)311.8
(11) BTAN (12).9457 (13)76 (14)25.50
(15) 141 (16)945.7 (17)607.38

Finish the daily report with a short text message, if necessary, and "End msg." Example:

Vessel stopped fishing at 2330 hrs. on 09/14. Enroute to Dutch Harbor for offload. End msg.

(1) OBSERVER NAME _____

(2) VESSEL NAME _____

(3) TARGET SPECIES _____

(4) DATE SENT _____

(5) CDQ NUMBER _____

CMD - DAILY CATCH MESSAGE FORM
for FAX communication

RKNG - Red King Crab
OKNG - Other King Crab
HERR - Herring
BTAN - Bairdi Tanner Crab
OTAN - Other Tanner Crab
HBT - Pacific Halibut
CSAL - Chinook Salmon
OSAL - Other Salmon

To: Alaska Regional Office
Inseason Management Branch
Juneau, AK

Via FAX: (907) 586-7131
Via TELEX: 62296000
Via Operator: (907) 586-7228

Vessel's FAX/TELEX _____

(6) Date		(7)	(8)	(9)	(10)	(11)	For requested prohibited species			(15)	For requested species group	
							(12)	(13)	(14)		(16)	(17)
Month	Day	NMFS Area	By area, total daily weight in metric tons	Sampling method	Total of haul weights per sampling method	Species Report Group Code	Total of prohibited species sample weights in metric tons	Total number of prohibited species in samples	Total weight of prohibited species in kilograms	Species Report Group Code	Total of species composition sample weights in kilograms	Total weight of species group in samples in kilograms

revised 3/93

DIAGONAL BOUNDARY LINE TABLES FOR THE BERING SEA

When you are given a position that is close to the diagonal boundary lines that separate areas 517 and 518 or areas 521 and 523, it may be difficult to determine exactly which area the catch should be attributed to. These tables will aid you in that determination.

The 1st table: Table 1, is a plot of the line intersecting areas 517 and 518. The line gives the corresponding latitude position for each minute of longitude.

The 2nd table: Table 2, is a plot of the line intersecting areas 521 and 523.

How To Use The Tables

First find the longitude of your retrieval position in Column B of the table. The corresponding latitude in Column A marks the point on the line which intersects the two areas. If the latitude of your retrieval position is greater than the table latitude, your position falls in the area to the north of the line. If the latitude of your retrieval position is less than the table latitude then your position falls in the area to the south of the line.

Special Cases

For retrieval positions that fall exactly on the line, or if the retrieval position falls on "Four Corners", the intersecting point of 55-46 N 170-00 W, use the trawl data you have for the haul or set to decide which area the fish were caught in and assign the catch to that area.

LAT COL. A	LONG COL. B
5430.00	16700.00
5430.43	16701.00
5430.86	16702.00
5431.29	16703.00
5431.72	16704.00
5432.14	16705.00
5432.57	16706.00
5433.00	16707.00
5433.43	16708.00
5433.86	16709.00
5434.29	16710.00
5434.71	16711.00
5435.14	16712.00
5435.57	16713.00
5436.00	16714.00
5436.43	16715.00
5436.85	16716.00
5437.28	16717.00
5437.71	16718.00
5438.14	16719.00
5438.56	16720.00
5438.99	16721.00
5439.42	16722.00
5439.85	16723.00
5440.27	16724.00
5440.70	16725.00
5441.13	16726.00
5441.55	16727.00
5441.98	16728.00
5442.41	16729.00
5442.83	16730.00
5443.26	16731.00
5443.69	16732.00
5444.11	16733.00
5444.54	16734.00
5444.97	16735.00
5445.39	16736.00
5445.82	16737.00
5446.25	16738.00
5446.67	16739.00
5447.10	16740.00
5447.52	16741.00
5447.95	16742.00
5448.38	16743.00
5448.80	16744.00
5449.23	16745.00
5449.65	16746.00
5450.08	16747.00
5450.50	16748.00
5450.93	16749.00
5451.35	16750.00
5451.78	16751.00
5452.20	16752.00
5452.63	16753.00
5453.05	16754.00
5453.48	16755.00
5453.90	16756.00

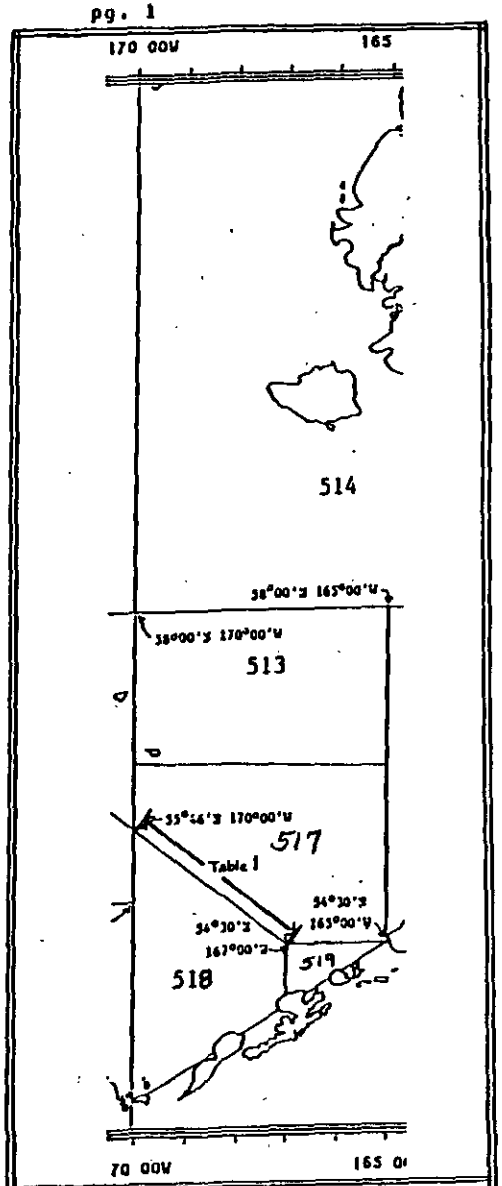
LAT COL. A	LONG COL. B
5454.73	16758.00
5455.18	16759.00
5455.60	16800.00
5456.03	16801.00
5456.45	16802.00
5456.87	16803.00
5457.30	16804.00
5457.72	16805.00
5458.15	16806.00
5458.57	16807.00
5458.99	16808.00
5459.42	16809.00
5459.84	16810.00
5500.27	16811.00
5500.69	16812.00
5501.11	16813.00
5501.54	16814.00
5501.96	16815.00
5502.38	16816.00
5502.81	16817.00
5503.23	16818.00
5503.65	16819.00
5504.08	16820.00
5504.50	16821.00
5504.92	16822.00
5505.34	16823.00
5505.77	16824.00
5506.19	16825.00
5506.61	16826.00
5507.03	16827.00
5507.46	16828.00
5507.88	16829.00
5508.30	16830.00
5508.72	16831.00
5509.15	16832.00
5509.57	16833.00
5509.99	16834.00
5510.41	16835.00
5510.83	16836.00
5511.26	16837.00
5511.68	16838.00
5512.10	16839.00
5512.52	16840.00
5512.94	16841.00
5513.36	16842.00
5513.78	16843.00
5514.21	16844.00
5514.63	16845.00
5515.05	16846.00
5515.47	16847.00
5515.89	16848.00
5516.31	16849.00
5516.73	16850.00
5517.15	16851.00
5517.57	16852.00
5517.99	16853.00
5518.41	16854.00
5518.83	16855.00
5519.25	16856.00
5519.67	16857.00

LAT COL. A	LONG COL. B
5520.09	16858.00
5520.51	16859.00
5520.93	16900.00
5521.35	16901.00
5521.77	16902.00
5522.19	16903.00
5522.61	16904.00
5523.03	16905.00
5523.45	16906.00
5523.87	16907.00
5524.29	16908.00
5524.71	16909.00
5525.13	16910.00
5525.55	16911.00
5525.97	16912.00
5526.39	16913.00
5526.81	16914.00
5527.23	16915.00
5527.64	16916.00
5528.06	16917.00
5528.48	16918.00
5528.90	16919.00
5529.32	16920.00
5529.74	16921.00
5530.16	16922.00
5530.57	16923.00
5530.99	16924.00
5531.41	16925.00
5531.83	16926.00
5532.25	16927.00
5532.66	16928.00
5533.08	16929.00
5533.50	16930.00
5533.92	16931.00
5534.34	16932.00
5534.75	16933.00
5535.17	16934.00
5535.59	16935.00
5536.01	16936.00
5536.42	16937.00
5536.84	16938.00
5537.26	16939.00
5537.67	16940.00
5538.09	16941.00
5538.51	16942.00
5538.93	16943.00
5539.34	16944.00
5539.76	16945.00
5540.18	16946.00
5540.59	16947.00
5541.01	16948.00
5541.42	16949.00
5541.84	16950.00
5542.26	16951.00
5542.67	16952.00
5543.09	16953.00
5543.51	16954.00
5543.92	16955.00
5544.34	16956.00
5544.75	16957.00

LAT COL. A	LONG COL. B
5545.17	16958.00
5545.58	16959.00
5546.00	17000.00

TABLE 1

plot of the points on the line intersecting between subareas 513 and 518, 519.



Map Section showing the line that the points of Table 1 follow.

LAT COL. A	LONG COL. B
5745.28	17458.00
5745.67	17459.00
5746.06	17500.00
5746.44	17501.00
5746.83	17502.00
5747.22	17503.00
5747.61	17504.00
5748.00	17505.00
5748.39	17506.00
5748.78	17507.00
5749.17	17508.00
5749.56	17509.00
5749.95	17510.00
5750.34	17511.00
5750.73	17512.00
5751.11	17513.00
5751.50	17514.00
5751.89	17515.00
5752.28	17516.00
5752.67	17517.00
5753.06	17518.00
5753.44	17519.00
5753.83	17520.00
5754.22	17521.00
5754.61	17522.00
5755.00	17523.00
5755.38	17524.00
5755.77	17525.00
5756.16	17526.00
5756.55	17527.00
5756.94	17528.00
5757.32	17529.00
5757.71	17530.00
5758.10	17531.00
5758.49	17532.00
5758.87	17533.00
5759.26	17534.00
5759.65	17535.00
5800.03	17536.00
5800.42	17537.00
5800.81	17538.00
5801.20	17539.00
5801.58	17540.00
5801.97	17541.00
5802.36	17542.00
5802.74	17543.00
5803.13	17544.00
5803.52	17545.00
5803.90	17546.00
5804.29	17547.00
5804.67	17548.00
5805.06	17549.00
5805.45	17550.00
5805.83	17551.00
5806.22	17552.00
5806.60	17553.00
5806.99	17554.00
5807.38	17555.00
5807.76	17556.00

LAT COL. A	LONG COL. B
5808.53	17558.00
5808.92	17559.00
5809.30	17600.00
5809.69	17601.00
5810.07	17602.00
5810.46	17603.00
5810.84	17604.00
5811.23	17605.00
5811.61	17606.00
5812.00	17607.00
5812.38	17608.00
5812.77	17609.00
5813.15	17610.00
5813.54	17611.00
5813.92	17612.00
5814.31	17613.00
5814.69	17614.00
5815.08	17615.00
5815.46	17616.00
5815.85	17617.00
5816.23	17618.00
5816.61	17619.00
5817.00	17620.00
5817.38	17621.00
5817.77	17622.00
5818.15	17623.00
5818.53	17624.00
5818.92	17625.00
5819.30	17626.00
5819.68	17627.00
5820.07	17628.00
5820.45	17629.00
5820.83	17630.00
5821.22	17631.00
5821.60	17632.00
5821.98	17633.00
5822.37	17634.00
5822.75	17635.00
5823.13	17636.00
5823.52	17637.00
5823.90	17638.00
5824.28	17639.00
5824.66	17640.00
5825.05	17641.00
5825.43	17642.00
5825.81	17643.00
5826.19	17644.00
5826.58	17645.00
5826.96	17646.00
5827.34	17647.00
5827.72	17648.00
5828.10	17649.00
5828.49	17650.00
5828.87	17651.00
5829.25	17652.00
5829.63	17653.00
5830.01	17654.00
5830.40	17655.00
5830.78	17656.00
5831.16	17657.00

LAT COL. A	LONG COL. B
5831.54	17658.00
5831.92	17659.00
5832.30	17700.00
5832.68	17701.00
5833.06	17702.00
5833.45	17703.00
5833.83	17704.00
5834.21	17705.00
5834.59	17706.00
5834.97	17707.00
5835.35	17708.00
5835.73	17709.00
5836.11	17710.00
5836.49	17711.00
5836.87	17712.00
5837.25	17713.00
5837.63	17714.00
5838.01	17715.00
5838.39	17716.00
5838.77	17717.00
5839.15	17718.00
5839.53	17719.00
5839.91	17720.00
5840.29	17721.00
5840.67	17722.00
5841.05	17723.00
5841.43	17724.00
5841.81	17725.00
5842.19	17726.00
5842.57	17727.00
5842.95	17728.00
5843.33	17729.00
5843.71	17730.00
5844.09	17731.00
5844.47	17732.00
5844.84	17733.00
5845.22	17734.00
5845.60	17735.00
5845.98	17736.00
5846.36	17737.00
5846.74	17738.00
5847.12	17739.00
5847.50	17740.00
5847.87	17741.00
5848.25	17742.00
5848.63	17743.00
5849.01	17744.00
5849.39	17745.00
5849.77	17746.00
5850.14	17747.00
5850.52	17748.00
5850.90	17749.00
5851.28	17750.00
5851.65	17751.00
5852.03	17752.00
5852.41	17753.00
5852.79	17754.00
5853.17	17755.00
5853.54	17756.00
5853.92	17757.00

LAT COL. A	LONG COL. B
5854.30	17758.00
5854.67	17759.00
5855.05	17800.00
5855.43	17801.00
5855.81	17802.00
5856.18	17803.00
5856.56	17804.00
5856.94	17805.00
5857.31	17806.00
5857.69	17807.00
5858.07	17808.00
5858.44	17809.00
5858.82	17810.00
5859.20	17811.00
5859.57	17812.00
5859.95	17813.00
5900.32	17814.00
5900.70	17815.00
5901.08	17816.00
5901.45	17817.00
5901.83	17818.00
5902.20	17819.00
5902.58	17820.00
5902.96	17821.00
5903.33	17822.00
5903.71	17823.00
5904.08	17824.00
5904.46	17825.00
5904.83	17826.00
5905.21	17827.00
5905.58	17828.00
5905.96	17829.00
5906.33	17830.00
5906.71	17831.00
5907.08	17832.00
5907.46	17833.00
5907.83	17834.00
5908.21	17835.00
5908.58	17836.00
5908.96	17837.00
5909.33	17838.00
5909.71	17839.00
5910.08	17840.00
5910.45	17841.00
5910.83	17842.00
5911.20	17843.00
5911.58	17844.00
5911.95	17845.00
5912.33	17846.00
5912.70	17847.00
5913.07	17848.00
5913.45	17849.00
5913.82	17850.00
5914.19	17851.00
5914.57	17852.00
5914.94	17853.00
5915.31	17854.00
5915.69	17855.00
5916.06	17856.00
5916.43	17857.00

LAT COL. A	LONG COL. B
5916.81	17858.00
5917.18	17859.00
5917.55	17900.00
5917.93	17901.00
5918.30	17902.00
5918.67	17903.00
5919.05	17904.00
5919.42	17905.00
5919.79	17906.00
5920.16	17907.00
5920.54	17908.00
5920.91	17909.00
5921.28	17910.00
5921.65	17911.00
5922.02	17912.00
5922.40	17913.00
5922.77	17914.00
5923.14	17915.00
5923.51	17916.00
5923.88	17917.00
5924.26	17918.00
5924.63	17919.00
5925.00	17920.00

SPECIAL PROJECTS AND ASSIGNMENTS

AGE STRUCTURE SAMPLING

For most commercial species, otoliths, or ear bones, are collected for age determination later. From salmon though, scales, not otoliths, are collected. Scales and otoliths are taken from Pacific cod. Scales and otoliths are read in a similar manner as tree rings to determine age. When assigned to collect, the species assigned will most likely be the target species of the vessel, or you will be asked to work on a specific species, or perhaps given several species to choose a sampling species from. If given a choice, your sampling species (one) will be dependent upon on what is abundant in the catches of your vessel.

Once the species is selected, the fish you take age structures from must first be from a random sample of the catch, and subsequently are selected by length. Therefore, the fish sampled should be a subset of those in your length frequency sample. (An exception would be when taking the otoliths or scales of a tagged fish.) Thus, the term "random stratified" means a collection based on length, from the random length frequency sample of fish.

A maximum of five pairs of otoliths per sex for each centimeter length group are to be taken for this type of collection (5 males and 5 females of each centimeter group). Do not be concerned if after filling your vials you do not have a complete set of five pairs of otoliths per sex for each centimeter length group that you observed. It is expected that you will have only a scattering of one or two samples from fish whose lengths are at the extremes of the size range you see. The object of this collection is not to complete the 5/cm/sex categories on the tally sheet or to fill all the vials. The object is to obtain age structures from most of the commonly observed length groups in the length frequency collection so that age and length information can be used to evaluate the status of the fish populations.

Age structures are always collected while taking length-frequency measurements by sex from the sampling species (except sablefish). A running tally of your age structure collection on your plastic form 9 helps you keep track of what sizes and sex of fish are still needed. (See an example of the plastic form 9 format on a following page.) Thus a cumulative tally should be maintained for the sampling species, for each collection. (Usually an observer makes only one collection of one species and a collection should be completed on one vessel.) After taking the length measurement, if the fish is of a size and sex needed, weigh the fish with the 2.0 kg or 12.0 kg scale. Record weight, sex, and length on the plastic form 9 next to the vial number in which the otoliths (or otoliths and scales in the case of cod) are placed. The otolith vials are to be filled in numerical order and the sexes should be grouped.

Remove the pair of otoliths from each fish. Clean the otoliths by rubbing them between your fingers in water, or on a wet sponge or cloth to remove slime and tissue. Place them in the vial dry. Place one set of two otoliths in each vial. It is extremely important to get the otoliths clean before storing them. If they are extracted fairly cleanly, rinse them anyway before dropping them in the vial. Try not to get any water in the vial as it will provide a media for bacteria growth. At the end of

Plastic Form 9US

Running tally keeps track of what sexes and sizes have already been filled. It should not be erased until the end of the collection.

These four columns are transferred to the paper Form 9US and erased after every sample

Notice that the sexes are seperated.

Vial No.	Sex	Length	Weight	Hand select	Running Tally cm	M	F	cm	M	F	cm	M	F
65	M	32	.80		30			60			0		
66	M	40	.95		1	ı		1			1		
67	M	35	.93		2	⌐	ı	2			2		
68	M	34	.85		3	⌐	ı	3			3		
69	M	34	.89		4	⌐	⌐	4			4		
70	M	42	.96		5	⌐	⌐	5			5		
71	M	44	.96		6	⌐	ı	6			6		
72	M	33	.80		7	⌐	⌐	7			7		
73	M	35	.86		8	⌐	⌐	8			8		
74	M	34	.83		39	⌐	⌐	69			9		
75	F	34	.90		40	⌐	⌐	0			0		
76	F	35	.93		1	⌐	⌐	1			1		
77	F	33	.80		2	⌐	⌐	2			2		
78	F	43	.95		3	ı	⌐	3			3		
79	F	34	.91		4	⌐	ı	4			4		
80	F	45	1.05		5		⌐	5			5		
81	F	47	1.20		6	ı		6			6		
82	F	43	.95		7		ı	7			7		
83	F	34	.82		8	ı		8			8		
84	F	38	.88		49	⌐		9			9		
					50		ı	0			0		
					1	ı	ı	1					
					2			2					
					3		ı	3					
					4			4					
					5			5					
					6			6					
					7			7					
					8			8					
					59			9					

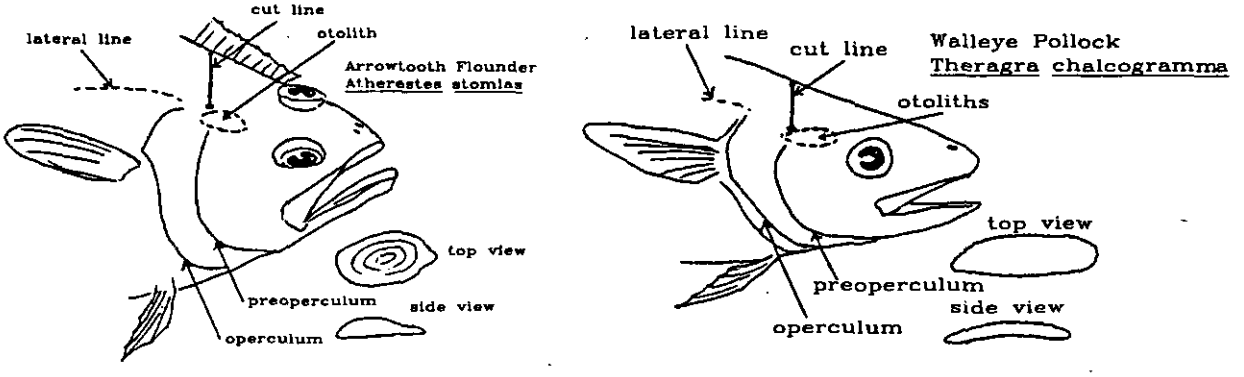
Otoliths and Scales
Plastic Form 9
Haul/sample No. 101
Species Pollock

* GPO 1985 JACKET #594-409

The blank in the tens position of the length allows the observer to vary the size categories according to the species being used.

Otolith Removal

The otoliths are located ventrally and to either side of the brain tissue, about one eye diameter behind the eye in most fishes (refer to the diagram below). There are three common methods of cutting into a fish's head to remove this pair of otoliths. On a roundfish, a horizontal cut, in an anterior to posterior direction which cuts off the top of the head can be done to expose the otolith cavity. This cavity can also be reached by going into the back of the mouth with a pair of forceps or scalpel and piercing up through the roof of the mouth. The easiest method to use in locating and removing otoliths is to make a vertical cut down through the top of the head to the location of the otolith pocket. This point is located by this simple rule of thumb: On the side of the fish's head, if you were to make a hypothetical extension of the lateral line and of the curve of the preopercular bone, determine the point at which these two lines would meet. Cut down to that point. Firmly grasp the fish by putting thumb and forefinger into the eye sockets. Bear down on the knife with even pressure as you cut through the bone of the head. Pay attention to the amount of pressure you are required to apply to make this cut. As soon as the cutting gets easier, let up on the knife or you will slice through the otoliths. Put down the knife and break the head open. If you have cut to the correct point, the otolith cavities (one on each side of the brain) will break open and expose the white, calcareous otoliths. They are then easily picked out with forceps and should be wiped clean before storage.



Approximate location of the otoliths (sagittal) and the cut for the removal of otoliths from flatfish (left figure) and roundfish (right figure).

Care should be taken not to break or crack the otoliths, but if an otolith is broken, and if the fish is of an uncommon size, include all pieces in the vial. Otherwise simply discard the otoliths because you will probably see fish of that sex and size again and it is extremely difficult to determine the age of broken otoliths.

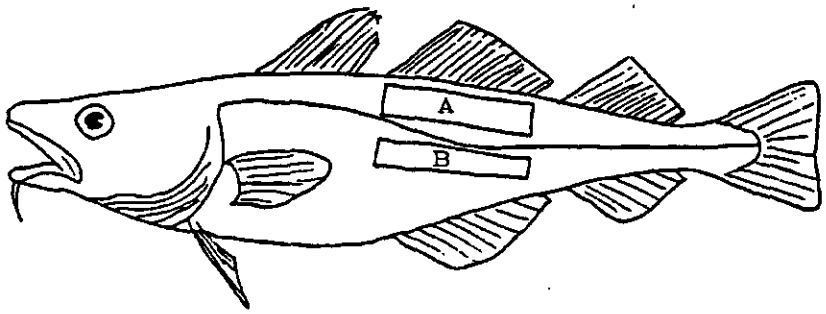
Start with the lowest number of the vial number sequence when starting your collection and fill consecutively numbered vials. Attempt to take some otoliths each sampling day if the species seems readily available. We prefer that you collect fewer than 20 otoliths per day (10 males and 10 females). When a sample species is seldom seen in quantity, however, you may want to take advantage of hauls containing many specimens and collect more otoliths/scales on those days.

you probably cut too deep. Flush the cavity out with some water. Don't try to get the otoliths by turning the fish upside down and hitting it against a board. The otoliths are too small and it's unlikely you'd find them.

Pacific Cod Age Structure Sampling

From Pacific cod, **scales as well as otoliths should be taken** from a sample stratified by length and sex as explained above. To collect scales, first rinse the fish off or lightly wipe down the sides with a very wet sponge to remove scales of other fish and slime. There are two preferred body zones from which to take scales, see the figure below. Zone "A" is preferred over zone "B." Use a clean, thin-edged instrument (knife, scalpel, forceps) to scrape in an anterior direction (toward the head), within zone A or B if possible. Cod scales are much smaller than salmon scales so a scrape sample is necessary.

Cod scales should be put into the vials with the otoliths instead of into scale envelopes. In debriefing, the vials will have to be opened and alcohol added to cover the age structures. So when collecting, the scales should be smeared off down in the vial as opposed to scraping them off on the vial rim so they are not clumped and stuck together too thickly, they will be immersed when alcohol is added and they will not get lost when the vial is opened and closed. Clean any remaining scales off the instrument before sampling the next fish.



PACIFIC COD - Scrape along either side of the back directly below the second dorsal fin.

OBSERVATIONS OF MARINE DEBRIS

The problem of marine debris, and its environmental impacts, has been avidly studied since the 1970's. Two ways of assessing the amount of marine debris are beach surveys and open-water surveys. Beach surveys are the most cost effective, but recently there have been numerous attempts to estimate the amount of debris in open water. As fisheries observers you are in a unique position to collect valuable information concerning types and distribution of debris at sea.

Though there are several acts (Environmental Protection Act, Clean Water Act) regulating the discharge of wastes by vessels and plants, observers are only asked to monitor vessel compliance to MARPOL regulations. Your ship will have a placard warning the crew of the MARPOL disposal restrictions. Your table of information is in the regulations section. Please familiarize yourself with what is legal and illegal to discharge at sea.

If you observe illegal discharge of debris by your vessel, you are to record the incident(s) in two places. First, record all of the specifics in your logbook. Consult the section titled "Steps To Take If You Suspect A Violation" for the essential information necessary in your logging of the illegal disposal. You may be asked to fill out an affidavit regarding the incident upon your return to Seattle. In addition to logging the incident for NMFS enforcement purposes, we also ask that you record the event on an "Observations Of Marine Debris" form (instructions follow) for use by the researchers in the Marine Entanglement and Research Program (MERPS) who are studying the point sources of marine pollution and creating re-educational information programs to battle the dumping of refuse at sea.

Instructions for Observations Of Marine Debris Form:

1. Record the cruise number, vessel code and year in columns 1-11.

2. In column 12 record sighting code number 3 for debris illegally discarded.

3. Enter the month and day, with leading zeros, in columns 13-16.

4. Skip all of the columns 17 through 34.

5. Go to columns 35-43 and record the latitude and longitude (as accurate as is possible) of the vessel during the dumping incident.

6. Record the debris code (next page) for the type of garbage dumped in columns 44-46 and then the size code in column 47 (see top of form for size codes).

7. Record the number of items for each debris and size code in column 48-49 (more than one line of entry per incident is okay) and in the last column (50) put a "D" for disposal code.

OBSERVATIONS OF MARINE DEBRIS

For recording both the disposal and the catch and disposal of marine debris.

Cruise No.	Vessel code	Year
1 - 5	6 - 9	10 - 11
		93

Sighting code
1 = Debris found in sampled portion of haul
2 = Debris found in portion of haul not sampled
3 = Lost or discarded debris

Size code
A = ≤ 1 quart
B = 1 qt - 5 gallons
C = 5 - 15 gallons
D = 15 - 30 gallons
E = > 30 gallons
F = codend
G = unknown

Disposal code
B = Burned
S = Stored
D = Discarded
L = Lost
U = Unknown
O = Other
N = Not applicable

Sight Code	Date Mo	Date Day	Sea State	Haul	Sample Size (mt)	Start Position (N) latitude	Start Position E/W	Start Position (1) longitude	End Position (N) latitude	End Position E/W	End Position (1) longitude	Debris Code	Size Code	Number	Disposal Code
12	13-14	15-16	17	18-20	21 - 25	26 - 29	30	31 - 34	35 - 38	39	40 - 43	44 - 46	47	48 - 49	50
3	01	26			.				5421	W	6631	883	D	3	D
3	01	30			.				5435	W	6640	876	E	1	D
3	01	30			.				5437	W	6642	858	B	6	D
			ILLEGAL DISPOSAL OF DEBRIS EXAMPLE →												
					.										
					.										
			CATCH AND DISPOSAL OF MARINE DEBRIS EXAMPLE →												
1	01	24	3	50	16·23	5423	W	6641	5426	W	6640	883	D	1	S
1	01	24	2	51	21·00	5426	W	6615	5427	W	6615	864	B	1	D
1	01	25	4	54	·53	5502	W	6641	5504	W	6642	855	B	2	S
					.										
					.										
					.										
					.										
					.										
					.										

Suitable sighting conditions are characterized by sea states with minimal chop, and visibility at least one kilometer ahead. This includes Beaufort codes 0-4 (see following page) with unrestricted visibility or visibility conditions between levels 1 and 4 (see below). You should limit concentrated sighting effort to one hour intervals to avoid fatigue. Observations should be made from the flying bridge or other elevated positions.

Instructions for Marine Debris Sighting Survey Form:

1. Use leading zeros where appropriate in month, day and sighting time.

2. Record your sighting effort! If no debris is sighted, complete columns 12 - 44.

3. Each item sighted should be recorded on a separate line of the survey form. Identify as closely as you can every item of debris that you see. What it is made out of is especially important. If you can't tell, don't guess. For each object sighted, record the code for the type of debris in columns 62-64. These codes are listed on a previous page of this section.

4. Record all debris objects regardless of their distance from the ship. Record your estimated distance (in meters) from the vessel to the object sighted in columns 65 - 68.

Surface Visibility Codes

Code		
1	Excellent -	A high overcast solid enough to prevent sun glare. Visibility >5 km.
2	Very Good -	Slight uneven lighting. Visibility >5 km.
3	Good -	Some sun glare or dark shadows in part of the survey track. Visibility $\leq$ 5 km.
4	Fair -	Sun glare or dark shadows in 50% or less of the survey track. Visibility $\leq$ 1 km.
5	Poor -	Sun glare may occur in over 50% of the survey track. Visibility $\leq$ 500 m.
6	Unacceptable -	Sun glare may or may not be present. Visibility $\leq$ 300 m.

MARINE DEBRIS SIGHTING SURVEY

Cruise No.	Vessel code	Year
1 - 5	6 - 9	10 - 11
		93

Date		Sea State	Vis	Start Position			End Position			Start Time	End Time	Speed (knots)	Sighting Position			Sight Time	Object	Est Dis (m)
Mo	Day			(N) lat	E/W	(1) lon	(N) lat	E/W	(1) lon				(N) lat	E/W	(1) lon			
12 -	15	16 - 17	18	19-22	23	24-27	28-31	32	33-36	37-40	41-44	45-47	48-51	52	53-56	57-61	62-64	65-68
01	22	3	2	5728	W	6430	5859	W	6432	1345	1450	3·8	5729	W	6431	1405	870	10
01	28	3	3	5814	W	6124	5830	W	6127	1430	1545	3·5	5821	W	6124	1505	880	4
												·						
			SIGHTING EFFORT EXAMPLES:								DEBRIS SIGHTED →							
												·						
								DEBRIS	NOT	SIGHTED →								
												·						
01	23	2	2	5720	W	6425	5730	W	6425	1015	1115	·						
01	24	2	2	5732	W	6502	5730	W	6505	1530	1550	·						
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CDQ FISHERY - DEVELOPMENT TO THE PRESENT

The Western Alaska Community Development Quota (CDQ) program for pollock was established under Amendment 18 to the Bering Sea and Aleutian Islands Fisheries Management Plan (the "inshore/offshore" amendment) which was approved by the Secretary of Commerce in 1992. The CDQ program is intended to help develop commercial fisheries in western Alaska communities. Amendment 18 provided for an annual allocation of 7.5 percent of the BSAI pollock total allowable catch (TAC) to the "CDQ reserve". This amount represents one-half of the annual non-specific reserve of pollock with a total annual tonnage in 1992 and '93 of 101,445.0 mt.

Pollock CDQs are assigned to organizations representing eligible Western Alaska communities who have submitted a Community Development Plan (CDP) that has been approved by the Governor of Alaska and the Secretary of Commerce. Each approved CDP receives a portion of the overall pollock "CDQ reserve". The harvest and processing of these CDP quota allocations are typically carried out by established fishing companies and their harvesting or processing vessels and plants either by purchasing the fish outright or by entering into partnerships with the various organizations. To date, six CDPs have been submitted and approved with each having from one to several processors harvesting the CDP's allotted quotas.

In open access fisheries, many individual vessels are attempting to maximize the proportion of the overall quota they harvest before the fishery closes upon reaching the established total allowable catch (TAC) or a prohibited species bycatch allowance. During open access, the individual vessel is not limited by their own harvests, but rather by the closure of the fishery due to the combined action of the fleet. Under this system, there is no direct cost to the individual processor for fish that they have caught. If total catch is over or underestimated for an individual processor, that error is distributed among all of the fishery participants in aggregated data.

In CDQ fisheries, each CDP has their own quota which they in turn allocate to their contracted or partner processors. In some cases, processors have been allotted a specific amount by their CDP, in others they have simply been accountable for their catch as a part of the overall CDP's quota. In either case, the derivation of total catch on an individual processor basis takes on an immediate economic dimension because the processor must compensate the CDP for the fish they are reported to have caught. If the processor's harvest is over-estimated, they pay for fish they did not catch. If, on the other hand, the processor's harvest is underestimated, they get fish they don't have to pay for.

Ultimately, NMFS is responsible for informing each CDP's designated representative if or when their quota has been exceeded. Each CDP's managing organization is responsible for managing their contracted or partner processors in a manner that prevents them from exceeding their quota. Both NMFS and the CDP representatives track the pollock quota by using the 2US and CMA data sent daily. The vessels may also take part in this by tracking their own harvest using your 2US and CMA data so a copy should be provided to vessel personnel if requested. Do not, however, calculate the vessel's pollock catch as your method of doing so may differ from the method NMFS uses. Please refer these questions on to the NMFS Regional Office in Juneau or to the appropriate CDP representative.

Observer Instructions for CDQ Fisheries

Processor Vessels - C/P and Motherships: Two observers will be assigned to each processor vessel. Your first priority is to obtain independent volumetric estimates on all hauls and report the information on the 2US and CMA on a daily basis. Sending a daily FAX (not COMS) of the 2US and CMA to the NMFS Regional Office in Juneau is required from the outset of CDQ fishing. A weekly message including the 2US, CMA, CMB, and Inseason Halibut Viability Form will still need to be sent to the Observer Program in Seattle. Detailed instructions for the daily messages follow in this section.

The lead observer will usually be the first observer on the vessel if a second observer joins them later for CDQ fishing. If both observers board the vessel at the same time, the observer who will remain aboard the vessel after CDQ fishing should be the lead. If there is any question as to who should be the lead observer on your vessel, contact the Seattle office for this decision. The two observers should compile a single set of vessel sampling data and catch messages. The lead observer has the responsibility for keeping the entire set of vessel data and bringing it through debriefing. This includes special project data forms and specimens and salmon scales collected on that vessel by either observer. The non-lead observer who goes on to another assignment after the CDQ boat should begin their salmon scale collection over again.

Fill out only a single set of 2US forms, regardless of starting or ending CDQ fishing or fishing for more than one Community Development Plan. Remember, fill out separate CMA's and CMB's for each fishery or quota fished for in one week, but keep only one set of 2US forms.

In our experience, two observers usually end up rotating twelve hour shifts. **The total catch estimation method must be the same for the two observers on one processor vessel.** Each observer may use different composition sampling methods as long as they conform to the program guidelines. The primary objectives are to make observer estimates of every haul and sample at least all the hauls selected by the RST. However, with the increased work capacity of two observers, our next priorities are for you to 1) work on improving the accuracy of the volumetric catch weight estimations, 2) sample more hauls, then 3) increase sample sizes (in this order). If there is a difference of opinion between observers or with vessel personnel on priorities or methodology, be sure to contact one of our offices for clarification.

The Official Total Catch weight on CDQ processor vessels (except the Alaska Ocean) is a volumetric estimate made by observers from certified and marked bins (the Alaska Ocean has an in-line conveyor weighing system). Refer to the preceding regulation (h) (2) (ii) (A) regarding the requirements for certified bins. Utilize the certified bin measurements for your weight estimate and use your estimate for the OTC. Record your estimate in the OTC and Observer Estimate columns for every haul. The manual lists several options for estimating OTC. For observers on CDQ processor vessels however, observer estimation using the certified bin documentation, is the only method to be used.

While aboard, if there are any problems regarding the volumetric requirements, or vessel personnel are trying to influence you about some aspect of your work, please contact an Observer Program office. It is expected that cooperation by vessel personnel will be provided to enable

3. This fishery is being managed directly from 2US and CMA observer data. Therefore, **if you discover an error on a message that has already been sent, please send Juneau a plain sheet FAX with your name, vessel name, week ending date, haul number, original value, and new value on it.**

4. If your vessel has COMS, you will need to be submitting the salmon retention daily via COMS to Seattle as well as the 2US and CMA FAX'ed daily to Juneau.

Observers on Catcher Vessels: Catcher vessels will only have one observer. The OTC weight will be obtained by proportioned delivery weight plus the weight of any fish discarded at sea. The delivery weight may be proportioned by either the observer's or the skipper's catch estimates. Daily messages are required from the plant observer regarding the delivery information so do not worry about transmitting catch data from sea. It is necessary for the plant observer to, 1) report the pollock deliveries for Bering Sea areas separately from catches in the Aleutian Islands and 2) to include the weight of any pollock discarded at sea. Be sure to provide the plant observer with this information.

Shoreside Plant Observers: The daily message required from deliveries to shoreside plants is different from the format explained for c/p observers (see below). The managers need the daily total of CDQ pollock weight delivered plus the weight of any pollock discarded at sea, reported separately by Bering Sea versus Aleutian Islands areas, and by vessel (name). Plant observers should ask at the plant office for the appropriate CDQ number to include on their message.

SAMPLING SHRIMP TOWS

As groundfish seasons have been shortened some vessels are experimenting with shrimp fishing. Shrimp are managed by the State of Alaska; there is not a Federal Management Plan for shrimp. We are able to place observers on board these vessels because 1) they have volunteered to take observers or 2) they may alternate shrimp and groundfish operations or will keep some of their groundfish bycatch. The following set of instructions will give you information on sampling the catch and recording the data. Since this is a new fishery for us, situations may arise that we haven't addressed here; if you have any questions at all please contact our office. Species identification information is in the Species Identification manual.

FORMS: Since the ship will be able to retain incidentally caught groundfish species (in accordance with current regulations) you should record all data from the shrimp tows on the same set of forms as groundfish data.

Form 2US: On Form 2US leave the gear code blank and indicate somewhere on the form which tows are shrimp tows. All tows should be numbered consecutively, regardless of target species. We will assign a gear code later. OTC and Observer's estimate should be calculated using our usual methods.

FORM 3US: On the top of the Form 3US make a note identifying each shrimp tow. Identify shrimp to species and use the species codes provided. For species occurring in large quantities but for which we have no code, record them by name and leave the code blank. Bring back a sample of the shrimp species and we will assign a code. If you get very small quantities of different species, lump them together and record them as "shrimp unidentified". Groundfish should be identified as usual.

SAMPLING: The shrimp tows will probably be small, but may contain large numbers of shrimp or other small invertebrates. Since shrimp trawls have a codend liner or very small mesh, towing speed will be reduced. This should enable most fish to outswim the net. Try to use the following sampling methods:

Prohibited species - halibut, salmon, crab. Try to whole haul sample for these if possible. If there are large numbers of crab, use a sample size that you feel is appropriate.

Other large species - *try to whole haul or partial whole haul sample for species that do not appear in* great quantity in the tow or that are easy to pick out. These species will probably include some fish or large invertebrates.

Shrimp and other small animals - basket sample for these. You may want to avoid using large baskets for these samples since the sorting will be very time consuming. If the ship has small baskets see if you can use those. The baskets that are used to hold roe might be a useful size.

Try to avoid having two different sample sizes for species composition: this will cause problems in completing the CMA form. If you conclude that using two sample sizes results in better data or easier sampling, then extrapolate the smaller sample up to the larger sample size in your logbook. The extrapolated data will be entered on the CMA. Do not place the extrapolated data on the 3US

INSTRUCTIONS FOR OBSERVERS ON JIG VESSELS

The use of jig gear in the North Pacific groundfish fisheries has been expanding in recent years, particularly so for smaller vessels targeting Pacific cod in the Bering Sea/Aleutian Islands, and black rockfish in the Gulf of Alaska. Most vessels using jig gear are smaller than 60 feet and are currently exempt from observer coverage. However, some larger vessels participate in these fisheries and take observer coverage. Should you find yourself on a vessel using jig gear, please follow these instructions for sampling and recording your data. Our experience on this gear type is limited so your observations and final reports are especially important. In particular, please advise us if your experiences differ from what this handout indicates.

The Gear Type and Fishing Strategy

Typically, a vessel using jig gear has several automatic jigging machines attached at points along the rail. Each machine has a single monofilament line weighted at the end with several hooks above the weight. The hooks have lures attached and usually are not baited. The automated machines deploy the gear to whatever fishing depth is programmed, or bottom depth. Upon reaching depth, they jig automatically. The more expensive machines can be programmed to sense a set resistance, such as 20 kilograms of fish, and automatically retrieve the gear, or retrieval can be done at the discretion of a crewman.

The strategy employed by jig vessels is similar to sport bottom fishing. The vessel either locates fish, or goes to a probable location, stops the vessel and deploys the gear at a drift. If fish are present, and are amenable to taking the jigs, the catch should commence immediately. Vessels will stay on a site until the fishing activity drops off, and then move to a more productive location. While at any particular site they may move about to some degree in order to drift over a certain spot, rock, ledge or whatever. For our purposes, this represents the same fishing site and the same fishing set.

Form Instructions

1US - On a Jig Vessel please use the 1US form and follow the 1US instructions for longline and pot vessels with the following exceptions:

1. The gear type for jigs is 7.

2. The soak time is the total time from when gear is first deployed in a set until the last jigs are retrieved. Do not get concerned if any given machine breaks down or if the vessel stops fishing momentarily at the same site- all the time on a site is counted as total time no matter how many jigs are deployed, or if there are short stops in fishing.

3. In place of the total number of skates, enter the total number of separate jigging machines that were used in that set.

4. In place of the skate length or pot set length, enter the fishing depth as measured at the bottom of the weight. Do not subtract a fathom or two to account for where the hooks are at on the line. In many cases, fishing depth will equal the bottom depth, but not always such as

MID-CRUISE CHECK, REPORTS AND DEBRIEFING

MID-CRUISE CHECK

All observers on their first and second contract are **required** to have a mid-cruise check. Observers on their third contract or more will be notified in briefing if a mid-cruise check is required or not. To check-in, observers should report to the Kodiak or Dutch Harbor office sometime within the first month of their cruise with their data, including logbook, catch messages, and species ID forms. For observers on catcher/processors, this may be during the vessel's first off-load. For shoreside delivery vessels, observers should wait until the second or third delivery.

If the field office is temporarily closed (as on weekends) while you are in port, you should call and leave a message. If the vessel only comes into port on weekends, call the field office from sea. If you are assigned to a remote location, or you're on a vessel which doesn't come into Dutch or Kodiak, or (for whatever reason) you cannot contact the field offices; you are expected to phone, radio or fax the Seattle office for your mid-cruise check. Detailed answers to the following questions and any questions you may have (for each vessel) should be faxed to the office in lieu of your visit.

1. Please describe how Official Total Catch was determined. If the observer estimate was used, how did you obtain the OTC when no observer estimate was made? Explain any formulas used.

2. Describe in detail how the observer estimate was made. How were densities determined? What was the average density value and predominant species in the catch? If certified bin measurements were used, did you find any difficulties? If no observer estimates were made, explain why.

3. Explain in detail the sampling method(s) you used on this vessel. Describe your sampling area, how you collected the samples, and if there were any difficulties.

4. Did you obtain sexed length frequencies? Please describe methods used and any difficulties you encountered in sexing fish. Also describe how halibut viabilities and lengths were collected. If none were collected, please explain why.

5. Please describe anything that has affected your ability to effectively conduct your work.

Since much of the data observers are collecting is used for in-season management, it is important that the data be recorded as accurately as possible **during** a cruise. Mid-cruise check-ins are an important tool in helping to identify and solve conceptual problems early on in the contract. They may also help in finding some math and paperwork errors, saving the observer time in making corrections during debriefing. Usually the data will not get a thorough enough check to catch minor errors, even if they are repetitive. During a mid-cruise check, observers are reminded of any duties they may have overlooked and are also helped in setting priorities if they are having difficulty completing some duties.

3. Reports: Prior to the debriefing interview, you will be filling out an electronic report for each vessel you are assigned to. During training you may request a copy of a preliminary questionnaire titled, "Information Required to Complete the Electronic Version of the Final Report." It will help you gather the information required to complete the electronic version of the final report.

4. Your last catch message must have been received before an appointment for debriefing can be made at NMFS. The last catch message, if not sent from the ship, should be sent before departing your port if you are returning to Seattle or as soon as possible.

5. You will need these forms and reports completed when you come in for debriefing:
For trawler observers:
Form 2US, 3US, 7US, CMA, CMB, and the Inseason Halibut Form
Species Identification forms
Preliminary vessel questionnaire in logbook
Other forms you may have include: Any special project forms, tagged fish forms, Form 8 (PRR), 9US, 10US, 11US, Salmon Retention forms.

For longline and pot vessel observers:
Form 1US, 3US, 7US, CMA, CMB, the Inseason Halibut Form
Species Identification forms.
Preliminary vessel questionnaire in logbook
Other forms you may have include: Any special project forms, tagged fish forms, Form 8 (PRR), 9US, 10US and 11US.

For plant observers:
Form A, 7US, and 9US, weekly plant report
Other forms you may have include: tagged fish forms, Form 8 (PRR), Salmon Retention, and plant observer special project forms.

With the exception of the electronic final vessel report, all of these forms should be filled out while you are at sea and must be complete at the time of debriefing. Keeping up with your work at sea becomes especially important if you are deployed on more than one vessel or plant. The speed with which you complete debriefing depends largely on your preparedness.

are multiple choice reports, there are many that require you to provide comments. Your comments must be complete with good detail and written with step-by-step logic that is easy to follow.

The Interview

Interview appointments are also made by your contractor and cannot take place until the electronic vessel reports have been completed. *You must bring all your data forms and logbook to the debriefing appointment!!* During your interview, the debriefer will discuss your data collection methods based on the information you provided in the final report. Changes to the reports may be made at this point at the debriefer's discretion. Also, the debriefer will verify your species identification, and review your data forms and logbook for obvious errors.

The most important aspects of the interview are honesty and a willingness to discuss problems and difficulties. We need to know the feasibility of sampling on the various vessels and plants. Observers are our only sources for this kind of information. If you feel you were not able to sample adequately, tell us so we can help you and the next observer. If errors are detected, they must be corrected before you turn in your data for the pre-keypunch check. Potential fisheries or MARPOL regulation violations will be discussed in detail and documented. You may be asked to write affidavits or photocopy your data as evidence.

The Pre-Keypunch Check

This part of debriefing is referred to as a pre-keypunch check because it is a review of your data before it is converted to electronic data (keypunched). All data, biological samples, reports, and logbooks must be submitted for this review. Once you have turned in your data it will be checked on a first come, first served, basis. The debriefers then thoroughly check all your forms and logbook entries. The forms will be sent to keypunchers whose job it is to enter numbers. Their job is NOT interpreting data. Because almost all data are processed by computer, the forms have a specific format and must be filled in correctly. This is where handwriting and arrows for "repeat fields" become critically important. If you try to be creative with your forms, the data may not be entered properly.

As many errors as possible need to be identified before you are finished with debriefing because you may be the only person who can easily correct them. As an example, if there is a mismatch between forms on a date and haul number, only you may know which is correct. A data editor, weeks later, would have to read your logbook, compare all forms and may have to wait months for a vessel logbook to arrive before the correct date for a given haul can be obtained. After a debriefer has pre-keypunch checked your data, it will be returned to you along with a list of needed corrections. The next step is to make the noted corrections. Be sure to follow through corrections on all affected forms and in your logbook. If you make changes to your 1US, 2US, CMA, or CMB; do so in blue pencil. Entries made or circled in blue will alert editors to changes made to the data after your weekly message transmission.

- Every time there is a decimal point printed on the page there should be two decimal places written in behind it (the exception to this is the fishing speed on Form 2US). If there is no decimal point printed on the page then you can put one or two decimal places at your discretion. *Remember that every weight must have a decimal place and no* numbers of fish can have a decimal place.
- All repeat fields (arrows and brackets) should be complete and have the same number at the top and bottom.
- Be sure that your handwriting is clear and legible. The data is keypunched by people who do not have any idea how the data is used and what should be on each form. They will punch what they think they see.

Make notes on your forms and in your logbook at sea. Notes should be made any time you have something that is a little bit odd or that might need some explaining. There is space on the top, bottom, and edges of the forms to make notes, so use it. Only write notes in non-keypunched areas. These notes will enable the person checking your data, and data editors, to understand the circumstances without having to talk to you and have you explain it. Notes may include, but are certainly not limited to: sub-samples, long fishing times, missing data you could not obtain, and reasons for choices made that you weren't certain about.

Form 1US and 2US: Look these forms over carefully. Question anything that seems incorrect with the ship's personnel while at sea. If you make any changes to your catch messages (1US or 2US, CMA, and CMB) from the original data sent to NMFS, circle the change or use a blue pencil to make the correction. Check Form 1US or 2US for:

- An entry for every day, whether fishing or not. For non-fishing days at sea, make a note after the noon position giving the reason why the ship is not fishing. *If the ship is in port, no noon position is required* but on catcher vessels record the date and note the delivery. This is required even if, due to a quick turn around, a vessel is able to deliver and get back to fishing in one day. These entries are the only cases where you may write notes within a keypunch area of a form.
- No duplicate haul numbers.
- Haul numbers in consecutive order. Haul number zero for non-fishing days at sea (those with noon positions).
- No missing data in a line, except duration, possibly speed, or observer total catch data.
- No decimals other than those printed on the page.
- Depths must be rounded to whole numbers. No fishing depths deeper than bottom depths.
- Not putting the noon position under "Haul Position" on non-fishing days at sea.
- A position must be recorded for all hauls. Go back to the fishing log and look up the position, or if it's too late for that, interpolate one from the positions before and after the missing one.
- Positions that are very far from the previous position. If it's not plausible given the times recorded, put a note of explanation on form.
- No minutes greater than 59.
- No overlapping of on and off bottom times of one haul, or between hauls (except on catcher/processors acting as motherships or on motherships).
- Retrieval times of 0000 are attributed to the next day. Do not use 2400, use 0000 instead.

Form 7US - Check for:

- **No estimated lengths recorded!**
- Hauls listed in ascending order.
- Matching species codes to species names.
- Species name, species code, and haul number for every line of data.
- No species listed in a greater number than on the 3US form in whole haul sampled data.
- No decimal places in lengths.
- No lengths off by 10 cm. (Write in the tens' values on the plastic strip!)
- Lengths recorded in ascending order. No lengths with a frequency of zero.
- Lengths of zero for viability of halibut which are not measured.
- No size groups reversed with the frequency.
- Correct keypunch check sum of the numbers on the line. Did you double check your math?
- All crab units of measurement ending in a "3" or an "8."
- Sex codes recorded for every species, every line. Halibut have condition or sex codes of "E", "P", "D", or "U". All other species with a sex code of "F", "M", or "U".
- Hauls matching dates according to 1US or 2US data. Dates match delivery dates for all plant observer data.

Form 9US - Check for:

- Separate otolith collections of a single species taken on different boats. (See "General Instructions for Data Forms," in section 1 of this manual.)
- Specimen type, sampling system entries present in the heading line.
- Only one NMFS area per page. NMFS area filled in?
- Each species must be on a separate set of pages with separate page numbering (1 through whatever, for each species).
- No comments or numbers in "total no. of specimens" or "catalogue date" or "remarks" section opposite the data. These are for otolith or scale readers only.
- All specimens have a haul number, a specimen number, a sex, a length, and a weight.
- No duplicate specimen numbers for the same species.
- No otolith or scale number is skipped without a note as to why.
- Lengths must also be recorded on the 7US if you indicated a "Y" in the "Form 7?" column.
- Weights out to two decimal places. Do include trailing zeros!
- Specimen numbers must match the otolith vial numbers.

Form 10US: If a marine mammal was preying on catch, being fed, or was caught, killed, harassed, or deterred, there must be an entry on the 10AUS. If you are turning in a photo or have specimen data, you have to have an entry on 10BUS. On the 10AUS (interaction data), describe in detail the circumstances around the incident, features used in identification and any other pertinent information. On the 10BUS (specimen data), be sure to write a species description that is complete and can be used to identify the animal, methods of measurements, sexing criteria, and extent of injuries. If a marine mammal bone (clean of flesh) is caught, make an entry on the 10AUS only. All sightings of marine mammals (with no interaction) should be on Form 11US, not on the 10US.

Form 11US:

- Make sure that you have filled in all the boxes without shading.

Salmon Scale Collection: If you have salmon scales, you will need to match the weight data on the 9US to the weights on the 3US. Numbers of salmon by species and sex on 7US should match the 3US for that haul, or be a subsample of those fish. The lengths on your form 9US should be equal to or a subset of the lengths on your form 7US for the same species in the same haul. All of the salmon lengths on form 9US should be present on the 7US.

Otolith collection: If you collected otoliths, be sure that the haul numbers for the otolith collection correspond to the hauls on your 7US. If you took your otoliths from outside your length frequency sample you will need to talk to a debriefer about how it should be handled.

Final Note: Remember that the amount of time spent in debriefing depends largely upon you. Take the time to check your data carefully while at sea. If you take the time to make sure your data is neat, complete, and correct before turning it in, you will save everyone time later on. Debriefing is an essential part of your work and is a critical process to ensure the accuracy and validity of your hard work at sea.

REPORTS AND DOCUMENTATION	Brief and general with few specifics or details. Calculations are poorly labeled or not recorded at all. Documentation is insufficient to pursue compliance-related issues.	Concise, but contain all necessary information. Calculations are labeled, easy to follow, legible, and complete. Compliance-related documentation is adequate to initiate a case file.	Calculations, daily notes, and reports are all well-documented. Anything unusual in the catch or sampling methodology is recorded. Compliance-related documentation is well-written, detailed, and well-organized.
SPECIES IDENTIFICATION	Forms and/or verbal descriptions incomplete, incorrect, or missing.	Forms are completed for all major species to the extent that identifications can be verified.	Forms are completed for all major species to the extent that identifications can be verified.
PROBLEM SOLVING	Observer was unable to effectively solve problems that arose on their vessel and/or they never notified NMFS of the problems affecting their work. Observer fails to recognize compliance issues which affect the reliability of their data.	With assistance from NMFS personnel, the observer was able to solve all problems that arose. The observer recognizes and attempts to address compliance-related issues which affect the reliability of their data.	Working with vessel personnel, the observer was able to solve all problems that arose. Solutions are approved by NMFS before implementing and demonstrates the observer's understanding of sampling theory and the use of the data. The observer recognizes, addresses, and notifies NMFS of compliance-related issues which affect the reliability of their data.

§679.50(j)(1) Applicability.

This paragraph sets forth the procedures for suspension and decertification of observers under this section.

§679.50(j)(2) Policy.

(i) NMFS must certify responsible and qualified observers only. Suspension and decertification are discretionary actions that, taken in accordance with this section, are appropriate means to effectuate this policy.

(ii) The serious nature of suspension and decertification requires that these actions be taken only in the public interest for the promotion of fishery conservation and management and not for purposes of punishment. NMFS may impose suspension or decertification only for the causes and in accordance with the procedures set forth in this section.

(iii) In addition to suspension and decertification, observers who violate provisions of this part may be subject to penalties, fines, and other sanctions as authorized by law.

§679.50(j)(3) Public availability of suspension or decertification records.

Public availability of suspension or decertification records will depend upon the provisions of the Freedom of Information Act and other applicable law.

§679.50(j)(4) Effect and timing of suspension or decertification.

(i) Observers decertified or suspended must not provide services prescribed by this section to vessels and shoreside processors.

(ii) Suspension and decertification actions may be combined and imposed simultaneously.

§679.50(j)(5) Suspension.

(i) General.

(a) The suspending official may, in the public interest, suspend observers for any of the causes in (j)(5)(ii) of this section, using the procedures in paragraph (j)(5)(iii) of this section.

(b) Suspension may be imposed on the basis of adequate evidence, pending the completion of investigation or legal proceedings, when NMFS determines that immediate action is necessary. In assessing the adequacy of the evidence, the suspending official should consider how much information is available, how credible it is given the circumstances, whether or not important allegations are corroborated, and what inferences can reasonably be drawn as a result.

(ii) Causes for suspension.

(a) The suspending official may suspend observers upon a determination, based upon adequate evidence, that the observers committed any acts or omissions constituting a cause for decertification under paragraph (j)(6)(ii) of this section, or

(d) *Suspending official's decision.*

(1) The suspending official's decision must be based on all the information in the administrative record, including any submission made by observers on action based on an indictment: (*i*) in which the observer submission does not raise a genuine dispute over material facts, or (*ii*) in which additional proceedings to determine disputed material facts have been denied on the basis of NOAA General Counsel advice.
(2) In actions in which additional proceedings are necessary as to disputed material facts, written findings of fact must be prepared. The suspending official must base the decision on the facts as found, together with any information and argument submitted by the observer and any other information in the administrative record.
(3) The suspending official may refer matters involving disputed material facts to another official for findings of fact. The suspending official may reject any such findings, in whole or in part.
(4) The suspending official's decision must be made after the conclusion of the proceedings with respect to disputed facts.
(5) Prompt written notice of the suspending official's decision to affirm, modify or terminate the notice of suspension issued under this paragraph (j)(5) shall be served on the observer, personally or by certified mail, return receipt requested, at the last known residence.

(e) *Period of suspension.*

(1) Suspension is for a temporary period pending the completion of investigation and any ensuing legal proceedings or decertification proceedings, including any administrative review under paragraph (j)(7) of this section, unless sooner terminated by the suspending official or as provided in this paragraph (j). If suspension is in effect, the decertifying official will expedite any related decertification proceedings.
(2) If legal proceedings or decertification proceedings are not initiated within 12 months after the date of the suspension notice, the suspension must be terminated.

§679.50(j)(6) Decertification.

(i) General. The decertifying official may, in the public interest, decertify an observer for any of the causes in paragraph (j)(6)(ii) in this section using the procedures in paragraph (j)(6)(iii) of this section. The existence of a cause for decertification, does not necessarily require that the observer be decertified; the seriousness of the acts or omissions and any mitigating factors should be considered in making any decertification decision. The existence or nonexistence of any mitigating factors is not necessarily determinative of an observer's present fitness. Accordingly, if a cause for decertification exists, the observer has the burden of demonstrating, to the satisfaction of the decertifying official, present fitness and that decertification is not necessary.

(ii) Causes for decertification.

(a) *Observers.*
(1) The decertifying official may decertify an observer for a conviction of or civil judgment for the following: (*i*) Commission of fraud or other violation in connection with obtaining or

request, unless the observer and NMFS, by mutual agreement, waive the requirement for an audio tape.

(e) *Decertifying official's decision.*

(1) In actions based upon a conviction or judgment, or in which there is no genuine dispute over material facts, the decertifying official must make a decision on the basis of all the information in the administrative record, including any submission made by the observer. The decision must be made after receipt of any timely information and argument submitted by the observer.
(2) In actions in which additional proceedings are necessary as to disputed material facts, written findings of fact must be prepared. The decertifying official must base the decision on the facts as found, together with any information and argument submitted by the observer and any other information in the administrative record.
(3) The decertifying official may refer matters involving disputed material facts to another official for findings of fact. The decertifying official may reject any such findings, in whole or in part.
(4) The decertifying official's decision must be made after the conclusion of the proceedings with respect to disputed facts.
(5) In any action in which the proposed decertification is not based upon a conviction or civil judgment, the cause for decertification may be established by a preponderance of the evidence.

(f) *Notice of decertifying official's decision.*

(1) If the decertifying official decides to impose decertification, the observer must be given prompt notice personally or by certified mail, return receipt requested, at the last known residence. Such notice must: (*i*) Refer to the notice of proposed decertification. (*ii*) Specify the reasons for decertification. (*iii*) Advise that the decertification is effective immediately, unless the decertifying official determines that there is a compelling reason for maintaining certification for a specified period under conditions and restrictions necessary and appropriate to protect the public interest or promote fishery conservation and management and states the reasons in the notice.
(2) If decertification is not imposed, the decertifying official must promptly notify the observer, by certified mail, return receipt requested, at the last known residence.

(iv) Period of decertification.

(a) Decertification must be in force indefinitely or until rescinded.
(b) The decertifying official may rescind decertification, upon the observer's request, supported by documentation, for reasons such as:

(1) Newly discovered material evidence;
(2) Reversal of the conviction or civil judgment upon which the decertification was based;
(3) Elimination of other causes for which the decertification was imposed; or
(4) Other reasons the decertifying official deems appropriate.

REGULATORY COMPLIANCE AND THE OBSERVER

THE OBSERVER'S ROLE IN MONITORING COMPLIANCE WITH FISHERIES REGULATIONS

Fishery management comprises two main elements: (1) understanding the fisheries stocks, and (2) controlling human interaction with those stocks. As an observer your primary duties revolve around the collection of harvest data used in stock assessments. However, as an observer you also have a role in monitoring compliance with fishing regulations. This role is diverse, ranging from identification and collection of information on vessel-specific problems to collecting data used to understand fleet wide behavior and the effectiveness of management programs. As an observer, you have no formal enforcement authority. Your role is to observe vessel adherence to specific regulations. This role should not be taken lightly, nor should you act impulsively and without regard to the impact on your ability to collect management data.

The regulation summary in combination with your training should provide you with enough information for you to identify potential violations, address problem situations if they arise, and adequately document events. The following regulations are relevant to your work as an observer:

* Commercial groundfish regulations which are used to implement the Fisheries Management Plans of the North Pacific Groundfish fisheries in the Gulf of Alaska, and the Bering Sea and Aleutian Island areas.

* Regulations overseeing interactions between marine mammals and the commercial groundfish fleet.

* Regulations pertaining to safety standards that vessels carrying observers are required to adhere to.

* Marine pollution regulations that are directly related to protected and endangered species that interact with the North Pacific Groundfish Fishery.

Several regulations specifically prohibit actions that interfere with your personal safety and your right to conduct your required work. You need to be capable of recognizing situations and behavior that directly affect you and your safety. In addition you must have a clear understanding of how to resolve and report such incidences. The purpose of the following section is to provide reference material concerning the regulations, and guidelines for documenting and reporting potential violations of the regulations.

necessary harvest data for groundfish fisheries: (1) fish receipts filled out at the dock or processing plant, (2) logbooks and production reports completed by captains at sea, and (3) dock-side and at sea biological sampling of fish, along with observations of fishing operations by observers.

NMFS is required by the Magnuson Act to carry out a comprehensive program of fishery research to obtain information. Research programs are designed to gather knowledge and statistical information on fishery conservation and management, on economics of the fisheries, and on biological interdependence of fisheries or stocks. Other matters bearing on the abundance and availability of fish are also studied such as the impact of pollution on fish and the impact of wetland and estuarine degradation. The Alaska Fisheries Science Center is the research branch of NMFS responsible for conducting fisheries research in the federal waters off Alaska.

The Observer Program provides a major role in gathering fisheries harvest and biological data used for stock assessment and management. It also is irreplaceable in assessing marine mammal interactions, and in gathering information on vessel compliance with fisheries regulations. As competition in the fishery intensifies, proper management of the resource becomes crucial. An important component of effective management is the ability to monitor for regulatory compliance.

SCOPE OF REGULATIONS - §679.1

This summary contains fishing regulations implementing the FMP's for the federal groundfish fisheries of the Gulf of Alaska and Bering Sea and Aleutian Islands areas. These regulations are codified in Title 50 of the Code of Federal Regulations, Part 679 and in Title 16 of the United States Code Annotated, Chapter 38. This summary does not address U.S. commercial fishing for halibut, salmon, king and Tanner crab with the exception of incidental bycatch while fishing for groundfish. It also does not cover commercial fishing for scallops. Regulations governing halibut fishing are codified in 50 CFR, Part 301. Federal regulations governing salmon fishing are codified in 50 CFR, Parts 210 and 674. Commercial groundfish fishing within Alaska State waters (0-3 nautical miles offshore) and internal waters of the State of Alaska is managed by the Alaska Department of Fish and Game. Regulations governing such fisheries can be obtained from the Alaska Department of Fish and Game.

DEFINITIONS §679.2

1. GEOGRAPHIC DEFINITIONS

ALEUTIAN ISLANDS SUBAREA The portion of the Bering Sea/Aleutian Island management area south of 55° N. latitude and west of 170° W. longitude.

The Eastern Aleutian District (statistical area 541)
The Central Aleutian District (statistical area 542)
The Western Aleutian District (statistical area 543)

BERING SEA AND ALEUTIAN ISLAND MANAGEMENT AREA (BSAI) is the portion of the EEZ in the Bering Sea north of the Aleutian Island chain, and that portion of the EEZ in the North Pacific Ocean that is adjacent to the Aleutian Islands and west of 170°00' W. longitude.

Bering Sea Subarea (statistical areas 508, 509, 512, 513, 514, 516, 517, 518, 519, 521, 523, 524, 530)
Bogoslof district (statistical area 518)

BERING SEA SUBAREA is that portion of the BSAI exclusive of the Aleutian Islands subarea.

BYCATCH LIMITATION ZONES

Bycatch limitation zone 1 means BSAI statistical areas 508, 509, 512, and 516.
Bycatch limitation zone 2 means BSAI statistical areas 513, 517, and 521.

CONVENTION WATERS means all waters off Alaska in halibut regulatory areas 2C, 3A, 3B, 4A, 4B, 4C, 4D, and 4E.

DONUT HOLE The waters of the Central Bering Sea seaward of the outer boundary of the U.S. EEZ and seaward of the outer boundary of the Russian Federation. This area can be found in the Catch Message section of this manual (statistical area 550).

2. GENERAL DEFINITIONS

ADF&G means the State of Alaska Department of Fish and Game.

ALASKA LOCAL TIME (A.l.t.) means the current Alaska time, either daylight savings time or standard time.

AUTHORIZED OFFICER

a) Any commissioned, warrant, or petty officer of the U.S. Coast Guard;

b) Any special agent or fisheries enforcement officer of NMFS;

c) Any officer designated by the head of any Federal or State agency which has entered into an agreement with the secretary and Commandant of the U.S. Coast Guard to enforce the provisions of the Magnuson Act, i.e.: Alaska State Troopers from the ADF&G Office of Protection;

d) Any U.S. Coast Guard personnel accompanying and acting under the direction of any commissioned, warrant, or petty officer of the U.S. Coast Guard.

BREAST LINE means the rope or wire running along the forward edges of the side panels of a net, or along the forward edge of the side rope in a rope trawl (see figure 2, following).

CATCH or TAKE includes, but is not limited to, any activity which results in killing any fish or bringing any live fish on board.

COMMUNITY DEVELOPMENT PLAN (CDP) (applicable through Dec. 31, 1998) means a business plan for the development of a specific Western Alaska community or group of communities under the CDQ Program..

COMMUNITY DEVELOPMENT QUOTA (CDQ) (applicable through Dec. 31, 1998) means a percentage of the CDQ reserve for a particular fish species that is allocated to a CDP.

COMMUNITY DEVELOPMENT QUOTA RESERVE (CDQ Reserve) (applicable through Dec. 31, 1998) means a percentage of the TAC for a particular management area for pollock, halibut, or hook-and-line sablefish that has been set aside for purposes of the CDQ program.

DAILY REPORTING PERIOD OR DAY is the period from midnight (0001 hours) until the following midnight (2400 hours) using Alaska local time (A.l.t.).

FISH PRODUCT WEIGHT means the weight of the fish product in pounds or to at least the nearest hundredth of a metric ton (0.01 mt). Fish product weight is based upon the number of production units and the weight of those units. Production units include pans, cartons, blocks, trays, cans, bags, and individual fresh or frozen fish. The weight of a production unit is the average weight of representative samples and may include additives, but not packaging. Any allowance for water added cannot exceed 5 percent of the gross product weight (fish, additives, and water). NMFS may use the weight of the production units, to determine net weight, and to calculate round-weight equivalents.

GROUNDFISH means pollock, Pacific cod, any species of flatfish, any species of flounder and sole, Pacific Ocean Perch, thornyhead rockfish, other rockfish, sablefish, Atka mackerel, squid, and octopus. It includes all other marine invertebrates except shrimp, scallops, snails, king crab, Tanner crab, Dungeness crab, horsehair crab, lyre crab, coral, and clams. Also included are all other finfish except salmonids, steelhead trout, Pacific herring, and Pacific halibut.

HARVESTING or TO HARVEST means the catching and retaining of any fish.

HOOK & LINE means a stationary, buoyed, and anchored line with hooks attached, or the taking of fish by means of such a device.

INSHORE COMPONENT (applicable through December 31, 1998) means the following three categories of the U.S. groundfish fishery that process pollock harvested in a directed fishery for pollock in the GOA or BSAI, or Pacific cod harvested in a directed fishery for Pacific cod in the GOA, or both:

(1) Shoreside processing operations.

(2) Vessels less than 125 ft (38.1 m) in length overall (LOA), that process no more than 126 mt per week in round-weight equivalents of an aggregate amount of those fish.

(3) Vessels that process those fish at a single geographic location in Alaska State waters during a fishing year. For purposes of this definition, NMFS will determine the single geographic location in a fishing year for an individual processor from the geographic coordinates the vessel operator reports on the check-in report (679.5(h)) when that vessel first engages in processing those fish.

JIG means a single, non-buoyed, non-anchored line with hooks attached, or the taking of fish by means of such a device.

LANDING means offloading fish.

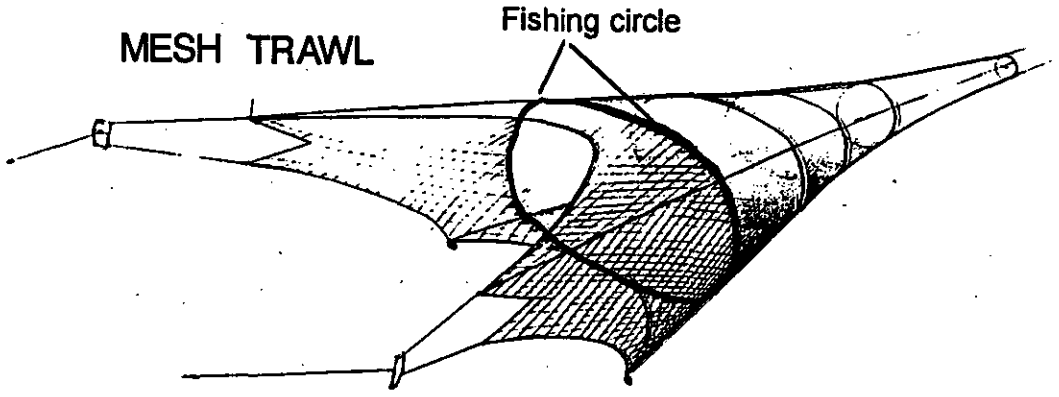
LENGTH OVERALL (LOA) of a vessel means the horizontal distance, rounded to the nearest foot, between the foremost part of the stem and the aftermost part of the stern, excluding bowsprits, rudders, outboard motor brackets, and similar fittings or attachments.

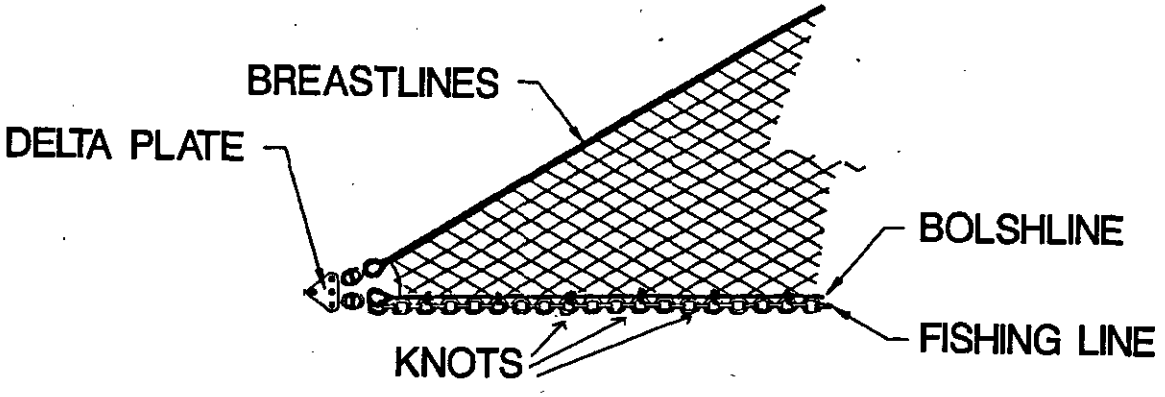
LONGLINE means a stationary, buoyed, and anchored line with hooks or two or more groundfish pots attached, or the taking of fish by means of such device.

LONGLINE POT means a stationary, buoyed, and anchored line with two or more pots attached, or the taking of fish by means of such a device.

MOTHERSHIP (with respect to subpart E of Part 679) means a processor vessel that receives and processes groundfish from other vessels and is not used for, or equipped to be used for, catching groundfish.

NET-SOUNDER DEVICE means a sensor used to determine the depth from the water surface at which a fishing net is operating.


MESH TRAWL
Fishing circle


BREASTLINES
DELTA PLATE
BOLSHLINE
FISHING LINE
KNOTS

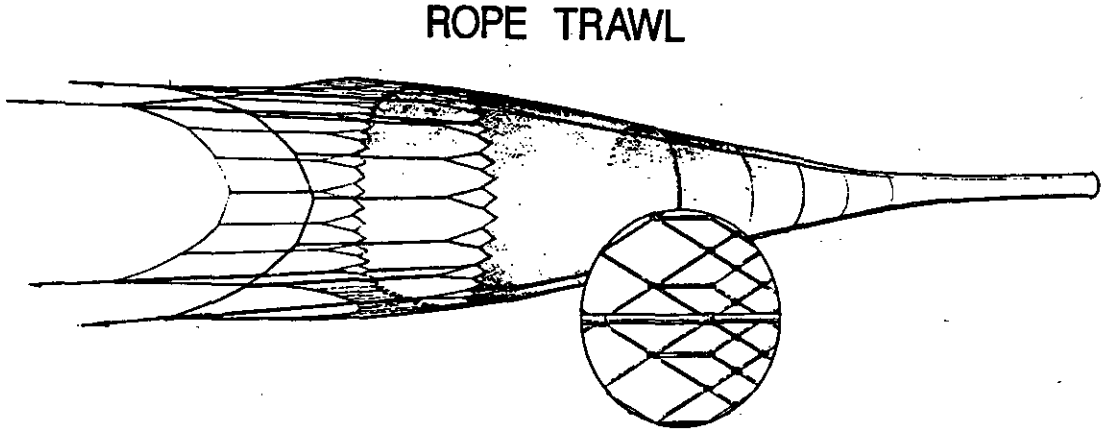

ROPE TRAWL

Figure 2

PERMITS - §679.4

No vessel may harvest or process groundfish in the BSAI or GOA management areas without first obtaining a federal fisheries permit. Each vessel must carry the permit on board and must present it for inspection upon the request of an authorized officer. Groundfish permits are not transferable, nor should they intentionally be altered or mutilated. They are obtained free of charge from the NMFS Office of Enforcement in Juneau, Alaska and are valid for one fishing year (January 1- December 31) and must be renewed annually.

When a vessel owner submits an application for a permit the following information is to be provided:

* Owner's name, address, and telephone number.
* ADF&G vessel number.
* U.S. Coast Guard documentation, or Alaska registration number.
* Name and Home Port of vessel.
* Type of gear used.
* Length and net tonnage of the vessel.
* Telephone, fax and COMSAT (satellite communication) number used on board.
* Names of operators and/or managers of the vessel.
* Vessel operations category (catcher vessel, catcher/processor, mothership, tender vessel, or support vessel.)

If information required during the permit application process changes, written notification must be provided to the Regional Director within 30 days, with one exception. Changes in mode of operation such as harvesting or support operations must be notified to the Director prior to engaging in a new operation.

Under the conditions of the groundfish permits, no person may use a vessel for which a BSAI or GOA groundfish permit was issued to catch or possess fish that were caught in the Donut Hole during the fishing year for which the permit was issued. If a permit is surrendered in accordance with the guidelines provided by the Alaska Regional Director a vessel may be used to catch or possess fish caught from the Donut Hole.

LOGBOOKS

GENERAL

If any catcher vessel, (catcher vessels less than 60 ft in length are exempt) catcher processor, or mothership, five net tons or larger, and any shoreside processing facility, floating processor, or buying station that is required to have a Federal groundfish permit, processes groundfish from any reporting area in the Gulf of Alaska or the Bering Sea/Aleutian Islands during the fishing year, they are required to maintain all prescribed groundfish logbooks. These logbooks are prescribed by the Regional Director and are provided to the operator of a vessel and the manager of a shoreside processing facility. The following groundfish logbooks are currently in use:

1) Daily Fishing Logbooks (DFL)

2) Daily Cumulative Production Logbooks (DCPL)

3) Product Transfer Logbooks.

Maintenance of the prescribed groundfish logbooks and compliance with the recordkeeping and reporting requirements is the responsibility of the vessel operator or the manager of the shoreside processing facility. Such information is to be maintained in a legible, timely, and accurate manner; in English; if handwritten, in indelible ink; if computer-generated, a printed, paper copy; and based on Alaska local time (A.l.t.). No person, other than an authorized officer may remove any original page of any logbook. In addition, no person may alter or change any entry or record in a logbook except that an inaccurate or incorrect entry or record may be corrected by lining out the original and inserting the correction, provided that the original entry or record remains legible. The owners of the vessel or shoreside processing facility must ensure that the operator or manager complies with these requirements, and is jointly responsible for compliance with these regulations.

RETENTION OF LOGBOOKS

* Original copies of all required logbooks must be retained on board the vessel or within the processing facility until the end of the fishing year and for as long after the end of the fishing year as fish or fish products recorded in the logbook are retained on board the vessel, or at the processing facility.

* The original (white) copy of all logbooks and a paper copy of all required reports and forms must be retained for three years after the end of the fishing year during which the records were made.

* The operator or manager of a buying station must retain the pink copy of all DCLs for three years after the end of the fishing year during which the records were made.

* Beginning time and position.
    * Trawlers - when gear reaches fishing level.
    * Other gear types - when first pot, jig, or hooks enter the water.
* The average sea depth - to the nearest fathom or meter.
* Average gear depth - to the nearest fathom or meter.
* End time (date if different from beginning date) and position.
    * Trawlers - when retrieval of trawl cables begins.
    * Other gear types - when last pot, jig, or hooks leave the water.
* Duration of set or trawl.
* For longline or single pot gear - the number of skates or pots per set, and the average number of hooks or pots.
* Round weight of Groundfish caught (whether retained or not).
* Intended target species.

OFFLOADS

On days that catcher vessels offload groundfish to a processor, the processors name, the ADF&G processor code, and the ADF&G fish ticket number must be recorded.

MAINTENANCE OF THE DAILY FISHING LOG

Within two hours after the haul is retrieved, the set or haul number, time, position and estimated groundfish catch weight must be recorded in the prescribed logbook. The remaining information described under the Effort and Catch data section, must be recorded by noon of the following day.

Discard information must be recorded in the Daily Fishing Logbook before the vessel's catch is off-loaded. Daily discard information for each day since the previous off-load must be provided to the processor receiving the catch. The processor must record this discard information in the Daily Cumulative Production Logbook and in the weekly production report.

SUBMISSION OF THE DAILY FISHING LOG

Quarterly submission. The operator of a catcher or catcher/processor vessel must submit a copy of the Daily Fishing Logbook on a quarterly basis to the Alaska Fisheries Science Center. The copy of the Daily Fishing Logbook for fishing activities conducted during the first quarter must be submitted by May 1 of that year; for the second quarter, by August 1 of that year; for the third quarter, by November 1 of that year; and for the fourth quarter, by February 1 of the following year.

MAINTENANCE OF DAILY CUMULATIVE PRODUCTION LOGBOOKS

Information concerning the catch receipt number or State of Alaska fish ticket number, time of receipt, the name of the delivering vessel and, for a mothership processor vessel, the position of that vessel and the estimated catch receipt weight, must be recorded in the Daily Cumulative Production Logbook within 2 hours after the set, codend or catch is received. All other information required in the Daily Cumulative Production Logbook as described in this section must be recorded by noon of the day following the day the catch receipt or production occurred. Information concerning product amounts must be recorded in the Daily Cumulative Production Logbook by noon of the day following the processing of the product regardless of when the set, codend or catch is received.

SUBMISSION OF THE DAILY CUMULATIVE PRODUCTION LOGBOOK

The operator of a processor vessel or manager of a shoreside processing facility must submit a copy of the daily cumulative production logbook on a quarterly basis to the Alaska Fisheries Science Center. The copy of the Daily Cumulative Production Logbook for activities conducted during the first quarter must be submitted by May 1 of that year; for the second quarter, by August 1 of that year; for the third quarter, by November 1 of that year; and for the fourth quarter, by February 1 of the following year.

PRODUCT TRANSFER LOGBOOKS

The operator of each processor vessel and the manager of each shoreside processing facility must record, in a separate transfer log, each loading, offloading, shipment, or receipt of any processed groundfish product, including quantities transferred or off loaded outside the EEZ, within any state's territorial waters, or within the internal waters of any state or at any shoreside facility. Product transfer information must be recorded in the product transfer log within twelve hours of the completion of the transfer.

The transfer logbook must have a record of the following information:

* The page number: This number must be consecutive beginning with page one for the first transfer occurring after the start of the fishing year and continuing throughout the logbook for the remainder of the fishing year.

* The time, date and location: This information must include the time and date when the transfer began and the time and date when it is completed. If the product transfer logbook is maintained for a processor vessel, this information must include the location of the transfer. If the processor vessel is at sea, the location of the transfer must be specified in geographic coordinates. If the processor vessel is in port, the location of the transfer must be specified by identifying that port.

* Identification information: When product transfer logbook is maintained for a processor vessel, the identification information must include the vessel's name, the Federal permit number, the ADF&G vessel number and radio call sign. When the product transfer logbook

out notice to the Regional Director. The check-in/check- out notices must be provided by means and in the manner prescribed by Regional Director.

The notice of check-in or check-out must include the following information:

* The processor vessel's name
* Radio call sign and,
* if applicable, Federal groundfish permit number; or the shoreside processor's name and ADF&G processor code number.
* Time and date information.

  If the notice concerns the commencement of fishing activity or the receipt of groundfish by a processor vessel, this information must include the time (to the nearest hour, ALT) and date of when these activities will begin.

  If the notice concerns the completion of fishing activities or the receipt of groundfish by a processor, this information must include the time (to the nearest hour, ALT) and date when these activities ceased.

  If the notice concerns the completion of groundfish receipts by a shoreside processing facility, this information must include the date when this activity ceased.

* Processor Vessel Location.

  The reporting area and the position in geographic coordinates where the fishing activity or receipt of groundfish is expected to occur or has occurred.

WEEKLY PRODUCTION REPORTS

PROCESSOR VESSELS

The operator of a processor vessel which conducts fishing activity in, or receives groundfish from, any GOA or BSAI reporting area must submit weekly production reports. Weekly production reports are required from a processor vessel beginning from the start date specified in the check-in notice and ending after all groundfish and fish products prepared with any groundfish harvested from any GOA or BSAI reporting area are off loaded. Weekly production reports are required during this period even if no groundfish are harvested, received, or processed during a particular week. Weekly production reports for such weeks should specify zero amounts harvested, received, or produced.

SHORESIDE PROCESSORS

The manager of a shoreside processing facility that receives groundfish from any GOA or BSAI reporting area must submit weekly production reports beginning with the first week of a fishing year that groundfish is received by the facility and continuing until the end of the year or until the date specified in a check-out notice. Weekly production reports are required during this period even if no groundfish are harvested, received, or processed during a particular week. Weekly production reports for such weeks should specify zero amounts received or produced.

* Identification information.
    Processor vessels must include:
        * The name,
        * radio call sign, and
        * Federal permit number of that vessel.
    Shoreside processing facility must include:
        * The name, and
        * The ADF&G processor code number of the plant.
* The gear type used to harvest the groundfish catch or catch receipt
        * Pelagic trawl,
        * Non-pelagic trawl,
        * Hook-and-line,
        * Pot,
        * Jig/troll
        * Other.
* The date(s) of groundfish harvest or receipt.
* For each day, the report must include groundfish catch for each species or species group listed by area(s).
* The fish product weight of each product produced during a day, including species and product-type codes. Each groundfish species or species group, except the "other species" category must be reported by TAC species or species group.
* The amount of each groundfish species or species group that is discarded in related fishing operations during a day.

SUBMISSION OF DAILY PRODUCTION REPORTS

Daily Production Reports must be submitted to the Regional Director through the means and in the manner prescribed by the Regional Director.

GENERAL PROHIBITIONS - §600.725, §679.7

IT IS UNLAWFUL FOR ANY PERSON TO :

* Fish for groundfish in the BSAI or GOA without a valid permit.

* Forcibly assault, resist, impede, intimidate, or interfere with an observer.

* Interfere with or bias the sampling procedure employed by an observer, including physical, mechanical, or other sorting or discarding of catch before sampling.

* Tamper with, destroy, or discard an observer's collected samples, equipment, records, photographic film, papers, or personal effects without the express consent of the observer.

* Use a vessel to fish with trawl gear in areas of BSAI Zone 1 that are closed to trawl gear unless NMFS authorizes this after consultation with the Council.

* Use a vessel to fish with trawl gear in areas of BSAI Zone 1 that are closed to trawl gear without fully complying with a scientific data collection and monitoring program.

* With respect to halibut caught while using hook-and-line gear to fish for groundfish, the following actions are prohibited:
    * Fail to release the halibut outboard a vessel's rails;
    * Release the **halibut** by any means other than one of the following **careful release** methods:
        * Cutting the gangion;
        * Positioning the gaff on the hook and twisting the hook from the halibut;
        * Straightening the hook by using the gaff to catch the bend of the hook and bracing the gaff against the vessel or any gear attached to the vessel;
    * Puncture the halibut with a gaff or other device; or

    * Allow the halibut to contact the vessel, if such contact causes, or is capable of causing, the halibut to be stripped from the hook.

* Have on board, at any particular time, 20 or more crab of any species which have a width of more than 1.5 inches (38 millimeters) at the widest dimension, caught with trawl gear during the following situations:
    * BSAI - When directed fishing for pollock with nonpelagic trawl gear is prohibited.
    * GOA - When directed fishing for groundfish, except by vessels using **pelagic trawl** gear for pollock, is prohibited.

* Discard any salmon taken incidental in a BSAI or GOA directed groundfish fishery by vessels using trawl gear until notified by a NMFS-certified observer that the number of salmon has been determined and the collection of any scientific data or biological samples has been completed. This regulation is known as **Salmon Retention.**

ENFORCEMENT - §600.7 § 600.8

Groundfish regulations may be enforced by authorized officers of the United States Coast Guard, Special Agents of the National Marine Fisheries Service, deputized officers of the Alaska Department of Public Safety, Fish & Wildlife Protection Division, or the Alaska Department of Fish & Game. The operator of, or any other person aboard a fishing vessel must comply with instructions and signals issued by an authorized officer to stop the vessel and to facilitate safe boarding and inspection of the vessel, its gear, equipment, fishing records, and catch. Please note that groundfish observers are not authorized enforcement officers.

Prohibited species include:

* Pacific salmon (All species.)
* steelhead trout
* halibut
* Pacific herring
* Tanner crab (All species)
* king crab (All species)
* Any groundfish species in any area where the total allowable catch of that species is zero or any groundfish species declared prohibited by a notice of closure.

The operator of each vessel must sort its catch as soon as possible after retrieval of the gear and return all prohibited species or part thereof to the sea immediately with a minimum of injury regardless of its condition, after allowing sampling by an observer. Observer sampling includes when salmon are to be retained for counting and the collection of biological data. It shall be presumed that any prohibited species found on board a vessel subject to these regulations was caught and retained in violation of these regulations.

SALMON RETENTION REGULATIONS - §679.21(c)

The operator of a vessel and the manager of a shoreside processing operation in a directed BSAI groundfish fishery by vessels using trawl gear must not discard any incidentally taken salmon until the salmon has been enumerated by a NMFS-certified observer, and the collection of any scientific data or biological samples from the salmon has been completed. Exceptions to this regulation include mothership processing vessels and shoreside processing plants that are exempt from obtaining observer coverage.

* Operators of vessels carrying observers onboard and whose fishing operations allow for sorting of groundfish catch for salmon must retain all salmon bycatch from each haul in a separate bin or other location that allows an observer free and unobstructed physical access to the salmon to count each fish and collect any scientific data or biological samples. Salmon from different hauls must be retained separately in a manner that identifies the haul from which the salmon were taken.

* Operators of vessels not carrying observers onboard or whose fishing operations do not allow for sorting of groundfish catch for salmon must ice, freeze, or store in a refrigerated saltwater tank all salmon taken as bycatch in trawl operations for delivery to the processor receiving the vessel's groundfish catch.

* Processors receiving groundfish harvested in a directed fishery for groundfish using trawl gear must retain all salmon delivered by each trawl vessel during a weekly reporting period in separate bins marked with the vessel's name and ADF&G fish ticket number(s) for each delivery until a NMFS-certified observer has counted each salmon and collected any scientific data or biological samples from the salmon delivered to the processor by that vessel. Processors without an observer present must store whole salmon in an iced or frozen

ROE STRIPPING REGULATIONS - §679.20(g)

Pollock roe retained onboard a vessel at any time during a fishing trip must not exceed seven percent of the total round-weight equivalent of pollock, as calculated from the primary pollock product onboard the vessel during the same fishing trip as defined below. Determinations of allowable retention of pollock roe will be based on the amounts of pollock harvested, received, or processed during a single fishing trip. Pollock or pollock products from previous fishing trips may not be used to determine the allowable retention of pollock roe for that vessel.

1. For purposes of this regulation, only one primary product per fish, other than roe, may be used to calculate the round-weight equivalent. The primary product must be distinguished from ancillary products in the daily cumulative production logbook. Ancillary products are those such as meal, heads, internal organs, pectoral girdles, or any other products which may be made from the same fish as the primary product.

2. Only the following product types and standard product recovery rates may be used to calculate round-weight equivalents for pollock for purposes of this subparagraph:

Product code	Product description	Standard product recovery rate
07	Headed and gutted, western cut	.65
08	Headed and gutted, eastern cut	.56
10	Headed and gutted, without tail	.50
20	Fillets with skin & ribs	.35
21	Fillets with skin on, no ribs	.30
22	Fillets with ribs no skin	.30
23	Fillets, skinless, boneless	.21
24	Deep skin fillets	.13
30	Surimi	.16
31	Mince	.22
32	Meal	.17

Catcher/processors or catcher vessels: All vessels of 125 feet length overall (LOA) or longer are required to carry an observer at all times when participating in the groundfish fishery, except for a vessel fishing with pot gear for groundfish. Vessels from 60 to 124 feet LOA and vessels fishing for groundfish with pot gear will be required to carry certified observers during 30 percent of its fishing days in each calendar quarter of the year in which they fish more than 3 days. Vessels under 60 feet LOA must carry an observer if required by the Regional Director. Each 30% coverage vessel (vessels from 60 to 124 feet LOA and each vessel fishing for groundfish with pot gear) that participates for more than 3 days in a calendar quarter in a directed groundfish fishery must carry an observer during at least one fishing trip in that calendar quarter for each groundfish fishery category. Vessels fishing with hook-and-line gear must carry an observer during one fishing trip in the Eastern Regulatory Area of the Gulf of Alaska during each calendar quarter the vessel participates in a directed groundfish fishery in the Eastern Regulatory Area.

OBSERVER REQUIREMENTS FOR SHORESIDE PROCESSING PLANTS

Shoreside processing facilities that process 1,000 mt or more, in round weight or round weight equivalents, of groundfish during a calendar month are required to have a NMFS certified observer present at the facility each day it receives or processes groundfish during that month. A shoreside processing facility that processes 500 mt to 1,000 mt, in round weight or round weight equivalents, of groundfish during a calendar month is required to have an NMFS certified observer present at the facility at least 30 percent of the days it receives or processes groundfish during that month. Facilities which receive less than 500 mt during a calendar month are not required to have an observer. A shoreside processing facility that offloads pollock at more than one location on the same dock and has distinct and separate equipment at each location to process those pollock and that receives pollock harvested by catcher vessels in the catcher vessel operational area during the second pollock season that starts on September 1, is required to have an observer, in addition to the observer required above, at each location where pollock is offloaded, for each day of the second pollock season until the chum salmon savings area is closed or October 15, whichever occurs first.

VESSEL RESPONSIBILITIES

An operator of a vessel required to carry one or more observers must:

(i) Accommodations and food.

* Provide at no cost to observers or the United States, accommodations and food on the vessel for the observer(s) that are equivalent to those provided for officers, engineers, foremen, deck-bosses or other management level personnel of the vessel.

(ii) Safe conditions.

* Maintain safe conditions on the vessel for the protection of the observers including adherence to all U.S. Coast Guard and other applicable rules, regulations, or statutes pertaining to safe operation of the vessel.

(viii) Assistance.

* Provide all other reasonable assistance to enable observers to carry out their duties, including, but not limited to, assisting observers in measuring decks, codends, and holding bins; providing the observers with a safe work area adjacent to the sampling collection site; when requested by observers, assisting in collecting bycatch, assisting in collecting and carrying baskets of fish; and allowing observers to determine the sex of fish when this procedure will not decrease the value of a significant portion of the catch.

(ix) Transfer at sea.

* Ensure that transfers of observers at sea via small boat or raft are carried out during daylight hours, under safe conditions, and with the agreement of observers involved.
* Notify observers at least 3 hours before observers are transferred, such that the observer can collect personal belongings, equipment, and scientific papers.
* Provide a safe pilot ladder and conduct the transfer to ensure the safety of observers during transfers.
* Provide an experienced crew member to assist observers in the small boat or raft in which any transfer is made.

SHORESIDE PROCESSOR RESPONSIBILITIES

The manager of the shoreside processor facility must:

(i) Safe conditions.

* Maintain safe conditions at the shoreside processing facility for the protection of observers by adhering to all applicable rules, regulations, or statutes pertaining to safe operation and maintenance of the processing facility.

(ii) Operations information.

* Notify the observers, as requested, of the planned facility operations and expected receipt of groundfish prior to the receipt of those fish.

(iii) Transmission of data.

* Allow observers to use the shoreside processor's communication equipment and personnel, on request, for the entry, transmission, and receipt of work-related messages, at no cost to the observers or the United States.

* Ensure that each shoreside processor that is required to have an additional observer, makes available to the observer the following equipment or equipment compatible therewith: A personal computer with a 486 or greater capacity processing chip with at least a 9600-baud modem and a telephone line. The personal computer must be equipped with a mouse, Windows version 3.1, or a program having the ability to operate the NMFS-supplied data entry software program, 10 megabytes free hard disk storage, and 8 megabytes RAM. The manager of the shoreside processor is responsible for obtaining the NMFS-supplied data entry software and for ensuring that all software and hardware required for observers to enter and transmit data is fully functional and operational.

SEASONS - §679.23

1. Fishing for groundfish in the Gulf of Alaska, Bering Sea, and Aleutian Islands is authorized from 0001 hours Alaska local time (A.l.t.), January 1, through 2400 hours, A.l.t., December 31, subject to other provisions of this part, except as provided in paragraphs (3) through (6) of this section.

2. The time of all openings and closures of fishing seasons, other than the beginning and end of the calendar fishing year, is 1200 hours, A.l.t.

3. Notwithstanding other provisions of this part, fishing for groundfish with trawl gear in the BSAI and GOA is prohibited from 0001 hours, A.l.t., January 1, through 1200 hours, A.l.t., January 20.

4. GOA Pollock: Subject to other provisions of this part, directed fishing for pollock in the Western and Central Gulf Regulatory Areas is authorized from January 1 to April 1, June 1 to July 1, and September. 1 to December 31.

5. Directed fishing for arrowtooth flounder and Greenland turbot in the BSAI is authorized from 1200 hours, A.l.t., May 1, through 2400 hours, A.l.t., December 31, subject to other provisions of this part.

GEAR LIMITATIONS - §679.24

MARKING OF LONGLINE GEAR

All longline marker buoys carried aboard or used by any vessel regulated under this part shall be marked with the following:

* The vessel's name; and
* The vessel's Federal fisheries permit number; or
* The vessel's registration number.

The required markings are to be in characters at least four inches high by one-half inch wide, in a contrasting color, and visible above the water line. These markings are to be maintained in good condition, so they are clearly visible.

GROUNDFISH POTS REQUIREMENTS

Each pot used to fish for groundfish must be equipped with a biodegradable panel at least 18 inches in length that is parallel to, and within 6 inches of, the bottom of the pot, and which is sewn up with untreated cotton thread of no larger size than No.30. Each pot used to fish for groundfish must also be equipped with rigid tunnel openings that are no wider than 9 inches and no higher than 9 inches, or soft tunnel openings with dimensions that are no wider than 9 inches.

From February 15 to June 15, no person may trawl in any of the following areas in the vicinity of Kodiak Island from a vessel having any trawl other than a pelagic trawl either attached or on board:

> Chirikof Island and Barnabas Areas: For general location see map above. For the exact coordinates please see the Commercial Fishing Regulations for U.S. Fishermen Fishing for Groundfish in the EEZ in the Gulf of Alaska.

Each person trawling in any area limited to pelagic trawling under of this section must maintain in working order on that trawl, a properly functioning, recording net-sounder device and must retain all net-sounder recordings aboard the fishing vessel during the fishing year. No person trawling in any area limited to pelagic trawling under this section will allow the footrope of that trawl to be in contract with the seabed for more than ten percent of the period of any tow, as indicated by the net-sounder device.

GEAR AND AREA RESTRICTIONS FOR THE BERING SEA AND ALEUTIAN ISLANDS - §679.22(a)

No fishing with trawl gear is allowed at any time in statistical area 512 except as described in the following paragraph.

Fishing for Pacific cod with trawl gear may be allowed in that portion of area 512 that lies south of a straight line connecting the coordinates 56°43' N latitude, 160°00' W longitude and 56°00' N latitude, 162°00' W longitude, provided that such fishing is in compliance with a scientific data collection and monitoring program, established by the Regional Director.

No fishing with trawl gear is allowed at any time in that part of area 516 during the period March 15 through June 15 except as described in the following paragraph.

During the period March 15 through June 15, fishing for Pacific cod with trawl gear may be allowed in that portion of area 516 that lies south of a straight line connecting the coordinates 55°38' N latitude, 163°00' W longitude, and 56°00' N latitude, 162°00' W longitude provided that such fishing is conducted in full compliance with a scientific data collection and monitoring programs established by the Regional Director.

ROUND ISLAND AND THE TWINS

From April 1 through September 30 of any fishing year, vessels are prohibited from fishing between 3 and 12 miles seaward of the baseline used to measure the territorial sea around islands named Round Island and Twins as shown on National Ocean Survey Chart 16315, and around Cape Pierce (58°33' N latitude, 161°43' W longitude).

CHUM SALMON SAVINGS AREA

Trawling is prohibited from August 1 through August 31 in the area defined by straight lines connecting the following coordinates in the order listed:

56°00' N 167°00' W
56°00' N 165°00' W
55°30' N 165°00' W
55°30' N 164°00' W
55°00' N 164°00' W
55°00' N 167°00' W
56°00' N 167°00' W

When the Regional Director determines that 42,000 non-chinook salmon have been caught by vessels using trawl gear during the time period of August 15 through October 14 in the CVOA, NMFS will prohibit fishing with trawl gear for the period of September 1 through October 14 in the Chum Savings Area.

PROGRAM TO REDUCE PROHIBITED SPECIES BYCATCH RATES - §679.21

While participating in BSAI and GOA trawl fisheries, a vessel's bycatch rate at the end of a fishing month shall not exceed bycatch rate standards referenced in this section. This program which is also known as the Vessel Incentive Program is based on observed data. For the purposes of this program, observed data refers to data collected by observers who are certified under the NMFS Observer Program.

BYCATCH RATES FOR HALIBUT AND RED KING CRAB

* The bycatch rate for halibut is the ratio of the total round weight of halibut, in kilograms, to the total round weight, in metric tons, of allocated groundfish species.
* The bycatch rate for red king crab is the ratio of the number of red king crab to the total round weight, in metric tons, of allocated groundfish species.

FISHING MONTH

* Fishing month refers to a time period based on weekly reporting periods and is as follows: Each fishing month begins on the first day of the first weekly reporting period that has at least 4 days in the associated calendar month. Fishing month ends on the last day of the last weekly reporting period that has at least 4 days in that same calendar month. Dates of each fishing month are announced in the Federal Register.

VESSEL BYCATCH RATES

For the purposes of this program observed data collected for each haul sampled during a day will include the date, position (Federal reporting area) where trawl gear was retrieved, total round weight of groundfish (mt) sampled by species or species group, total round weight of halibut, in kilograms, and total numbers of red king crab that were in the portion of the haul that was sampled.

OBSERVER SAMPLING PROCEDURES

* NMFS will randomly predetermine the hauls to be sampled by an observer during the time the observer is on a vessel.

* An observer will:
    * take samples at random from throughout the haul,
    * take samples prior to sorting of the haul by crew for processing or discarding of the catch.
    * sample a minimum of 100 kilograms of fish from each haul sampled.
    * report to NMFS, on at least a weekly basis, the data for sampled hauls.
    * allow the vessel operator to see all observed data that the observer submits to NMFS. Observed data was defined earlier for this section and is the CMA, CMB, 2US, and 3US data.

BYCATCH RATE CALCULATIONS

At the end of each fishing month during which an observer sampled at least 50 percent of a vessel's total number of trawl hauls retrieved (as recorded in the vessel's daily logbook), the Regional Director will calculate the vessel's bycatch rate. This bycatch rate is based on observed data for each fishery (as described previously in this section) to which the vessel was assigned for any weekly reporting period during that fishing month. Only observed data that has been checked, verified, and analyzed by NMFS will be used to calculate vessel bycatch rates for purposes of this section.

The halibut bycatch rate of a vessel for a fishery during a fishing month is a ratio of halibut to groundfish that is calculated by using the total round weight of halibut, in kilograms (for red king crab or chinook salmon bycatch rate, the total number is used) in samples during all weekly reporting periods in which the vessel was assigned to that fishery and the total round weight of the groundfish in metric tons in samples taken during all such periods.

COMPLIANCE WITH BYCATCH RATE STANDARDS

A vessel has exceeded a bycatch rate standard for a fishery if the vessel's bycatch rate for a fishing month exceeds the bycatch rate standard established for that fishery.

* The manager of each shoreside processing facility must notify the observer(s) of the offload schedule of each CDQ groundfish delivery at least 1 hour prior to offloading. This is necessary to provide the observer an opportunity to monitor the weighing of the entire delivery.

Vessel Requirements:

* Each processor vessel participating in the CDQ fishery must estimate the total weight of groundfish catch by the specified volumetric procedures, or must weight the catch prior to sorting.

VOLUMETRIC ESTIMATES

* Bins for volumetric estimates must:
  * be accurately measured and permanently marked in 10 cm intervals on all sides of the bins.
  * must have markings that are visible and readable from outside the bin.
  * have adequate lighting to allow markings to be read from outside the bin.
  * Prior to harvesting or receiving CDQ groundfish a certified table must be submitted to the Observer Program that indicates the volume of each bin in cubic meters for each 10cm increment. All bin certification documentation must be dated and signed by the certifier.
  * Vessel operators must notify observers prior to any removal or addition of fish from each bin used for volumetric measurements of catch. Such notice is to be made in such a manner that allows an observer to take bin volume measurements prior to fish being removed from or added to a bin.
  * Once a volumetric measurement has been taken additional fish may not be added to the bin until at least half the original volume has been removed. Fish may not be removed from or added to a bin used for volumetric measurements of catch until an observer indicates that bin volume measurements have been completed and any samples of catch required by the observer have been taken.
  * Fish from separate hauls or deliveries from separate harvesting vessels may not be mixed in any bin used for volumetric measurements.

SCALE ESTIMATES

* Any scale used on a processor vessel to weigh groundfish harvested in the CDQ fisheries must measure catch weights to at least 95% accuracy at all times as determined by a NMFS certified observer or authorized officer. The scale must be equipped with a motion compensation device to account for vessel acceleration, roll, pitch, and vibration movement. The scale and scale display must be visible by the observer simultaneously.
* Printouts of scale measurements of each weight must be made available to the observer and be maintained on board the vessel for the duration of the fishing year or for as long after a fishing year as products from fish harvested during that year are retained aboard the vessel.

REGULATIONS ON MARINE MAMMALS

Prepared by Observer Program Staff, 1995

REGULATIONS CONCERNING TAKING OF MARINE MAMMALS
(Excerpts taken from 50 CFR 216 and 229)

Definitions (§216.3)

Marine mammals means those specimens of the following orders, which are morphologically adapted to the marine environment, and whether alive or dead, and any parts thereof, including but not limited to, any raw dressed or dyed fur or skin: Cetacea (whales and porpoises), Pinnipedia (seals and sea lions), other than walrus.

Take means to harass, hunt, capture, collect, or kill, or attempt to harass, hunt, capture, collect, or kill, any marine mammal. This includes, without limitation, any of the following: The collection of dead animals, or parts thereof; the restraint or detention of a marine mammal, no matter how temporary; tagging a marine mammal; or the negligent or intentional operation of aircraft or vessel, feeding or attempting to feed a marine mammal in the wild, or the doing of other negligent or intentional acts which result in the disturbing or molesting of a marine mammal.

Feeding is defined as "offering, giving, or attempting to give food or non-food items to marine mammals in the wild. It includes operating a vessel or providing other platforms from which feeding is conducted or supported. It does not include the routine discard of bycatch during fishing operations or the routine discharge of waste or fish byproducts from fish processing plants or other platforms if the discharge is otherwise legal and is incidental to operation of the activity."
Prohibited taking. (§216.11)

Except as noted below, it is unlawful for:
(1) Any person, vessel, or conveyance subject to the jurisdiction of United States to take any marine mammal on the high seas, and
(2) Any person, vessel, or conveyance to take any marine mammal in waters under the jurisdiction of United States.

Prohibited uses, possession, transportation, and sales (§216.13)

It is unlawful for:

(1) Any person to use any port, harbor, or other place under the jurisdiction of the United States for any purpose in any way connected with a prohibited taking or unlawful importation of any marine mammal or marine mammal product; or

(2) Any person subject to the jurisdiction of the United States to possess any marine mammal taken in violation of the Marine Mammal Act or these regulations, or to transport, sell, or offer for sale any such marine mammal or any marine mammal product made from any such mammal.

* New Fishery Classification Criteria and Proposed List of Fisheries:
Commercial are classified according to their annual impact on marine mammal stocks, as defined by the number of serious injuries and mortalities relative to the stocks Potential Biological Removal (PBR). The status of all marine mammal stocks in U.S. waters, and each stock's serious injury and mortality rate relative to PBR, has been reviewed by NMFS biologists and other marine mammal scientists. A proposed list of fisheries has been developed, classifying fisheries according to the following criteria.

Category I — A commercial fishery that is, by itself, responsible for the annual removal of 50% or more of any stock's **PBR (Potential Biological Removal)**.

Category II — A commercial fishery that is, collectively with other fisheries, responsible for the annual removal of more than 10% of any marine mammal stock's PBR level and is by itself responsible for the annual removal of between 1% and 50% exclusively, of the PBR level for any stock.

Category III — A fishery that, collectively with other fisheries, is responsible for less than or equal to 10 percent of any marine mammal stock's PBR; **or** a fishery that, by itself, is responsible for less than or equal to 1 percent of that stock's PBR.

(Category II to Category III include Bering Sea and Aleutian Island groundfish trawl fisheries,)

* New Fishing Reporting Requirements:
All fishers, regardless of category, would be required to submit a report to NMFS within 48 hours after the end of the fishing trip if they have incidentally injured or killed a marine mammal in the course of commercial fishing operations. Intentional lethal taking of marine mammals is prohibited, except if imminently necessary in self defense or to save the life of another person in immediate danger. NMFS is developing easy-to-use computer scanning reports for use in reporting injuries and mortalities.

REGULATIONS CONCERNING STELLER SEA LIONS
(excerpts from §672.24 and §675.24)

New regulations now apply to all human activities, including commercial fishing, near Steller (northern) sea lions at-sea and near some of the islands where they breed.

1. Shooting at or near any Steller sea lion for any reason is now prohibited in U.S. waters. Fishermen may still use other means which do not result in injury or death to the animal to deter sea lions from interfering with their gear.

2. ***Fishing vessels are not permitted to enter within 3 nautical miles of Steller sealion rookery sites (locations where pups are born) west of 150 ° W longitude. Trawling cannot be conducted within 10 nautical miles of Steller sealion rookery sites during any part of the***

ISLAND NAME	FROM	TO	NOAA CHART	NOTES
Sea Lion Rocks	55°28.0N 163°12.0W		16520	whole island
Bogoslof I.	53°56.0N 168°02.0W		16500	whole island
Yunaska I.	52°41.0N 168°02.0W	52°42.0N 170°38.5W	16500	NE end
Seguam I.	52°21.0N 172°33.0W	52°21.0N 172°35.0W	16480	N coast, Saddleridge Pt.
Agligadak I.	52°05.5N 172°54.0W		16480	whole island
Kasatochi I.	52°10.5N 175°29.0W	52°10.0N 175°31.5W	16480	N half of island
Adak I.	51°36.5N 176°59.0W	51°38.0N 176°59.5W	16460	SW point, Cape Yakak
Gramp Rock	51°29.0N 178°20.5W		16460	whole island
Tag I.	51°33.5N 178°34.5W		16460	whole island
Ulak I.	51°20.0N 178°57.0W	51°18.5N 178°59.5W	16460	SE corner, Hasgox Pt.
Semisopochnoi	51°58.5N 179°45.5E	51°57.0N 179°46.0E	16440	E quadrant, Pochnoi Pt.
Semisopochnoi	52°01.5N 179°39.0E	52°01.5N 179°37.5E	16440	N quadrant, Petrel Pt.
Amchitka I.	51°21.5N 179°25.0E	51°22.5N 179°28.0E	16440	East Cape
Amchitka I.	51°32.5N 178°49.5E		16440	Column Rocks
Ayugadak Pt.	51°45.5N 178°24.5E		16440	SE coast of Rat I.
Kiska I.	51°52.5N 177°13.0E	51°53.0N 177°12.0E	16440	Cape At. Stephen
Kiska I.	51°57.5N 177°21.0E	51°56.5N 177°20.0E	16440	W central, Lief Cove
Outer I.	59°20.5N 150°23.0W	59°21.0N 150°24.5W	16013	S quadrant
Sugarloaf I.	58°53.0N 152°02.0W		16013	whole island
Marmot I.	58°14.5N 151°47.5W	58°10.0N 151°51.0W	16013	SE quadrant
Chirikof I.	55°45.5N 155°39.5W	55°45.5N 155°43.0W	16013	S quadrant

MARINE POLLUTION (MARPOL) REGULATIONS

Prepared by Observer Program Staff 1995

The International Convention for the Prevention of Pollution From Ships (MARPOL) and five annexes are international agreements that were designed to halt at-sea disposal of wastes. MARPOL Annex V specifically prohibits the at-sea disposal of all plastics. It also eliminates the discharge of other types of vessel-generated garbage to specific distances from land. The at-sea disposal restrictions apply to commercial and publicly owned vessels of all sizes and classes.

Vessels complying with MARPOL Annex V have three options for dealing with wastes. 1) Non-plastics can be disposed of at sea within the legal restrictions, 2) they can incinerate wastes onboard the vessel, or 3) they can hold the wastes for shoreside disposal at port. Even though MARPOL has been in place since 1988 some individual vessel operators and crew have chosen to ignore MARPOL restrictions.

Plastic debris has been a concern of the NMFS since the early 1980's. Studies conducted in the North Pacific have linked debris generated by commercial ground fishing vessels with detrimental impacts to fish, seabirds, and marine mammals. Fur seals, and Steller sealions have been shown to be vulnerable to entanglement in netting, rope, and packing strap discards. Entanglement in debris is thought to contribute to mortality of individuals through starvation, suffocation, infection in resulting wounds, exhaustion, bleeding, drowning, and possibly increased predation. Studies conducted by the NMFS, National Marine Mammal Laboratory indicate entanglement may be contributing to the decline in northern fur seal population. In addition to entanglement in netting and plastic wastes, other species are also affected by ingestion. Stomach analysis of some seabirds and fish have found undigestible plastics.

VESSEL OPERATOR OBLIGATIONS

PLACARDS

(1) The regulations require U.S. recreational and other U.S. vessel operators, if their vessel is 26 feet or more in length, to affix one or more placards to their vessel. These placards warn against the discharge of plastic and other forms of garbage within the navigable waters of the United States, and specify discharge restrictions beyond three miles from shore, as outlined later. The placard must also note that State and local regulations may further restrict the disposal of garbage.

(2) Operators shall ensure that one or more placards are displayed in prominent locations and in sufficient numbers so that they can be observed and read by the crew and passengers. These locations might include embarkations points, food service areas, galleys, garbage handling spaces, and common deck spaces frequented by passengers and crew.

(3) Each placard must be at least 9 inches wide and 4 inches high, made of durable material, and lettered with letters at least 1/8 inch high.

MATERIALS THAT CAN NOT BE DISCARDED

PLASTIC includes but is not limited to: plastic bags, Styrofoam cups and lids, six pack holders, stirrers, straws, milk jugs, egg cartons, synthetic fishing lines, ropes, line, and bio or photo-degradable plastics

GARBAGE means paper, rags, glass, metal, crockery (generated in living spaces aboard the vessel--what we normally call trash), and all kinds of food, maintenance and cargo-associated waste. "Garbage" does not include fresh fish or fish parts, dishwater, and gray water.

DUNNAGE is material used to block and brace cargo, and is considered a cargo-associated waste.

INSIDE 3 MILE

PLASTICS
DUNNAGE, LINING AND PACKING MATERIALS THAT FLOAT
ANY GARBAGE EXCEPT DISHWATER/GRAYWATER/FRESH FISH PARTS

3 TO 12 MILES

PLASTICS
DUNNAGE, LINING AND PACKING MATERIALS THAT FLOAT
ANY GARBAGE LARGER THAN ONE SQUARE INCH

12 TO 25 MILES

PLASTIC
DUNNAGE, LINING AND PACKING MATERIALS THAT FLOAT

OUTSIDE 25 MILES

PLASTIC

DISHWATER means the liquid residue from the manual or automatic washing of dishes and cooking utensils which have been pre-cleaned to the extent that any food particles adhering to them would not normally interfere with the operation of automatic dishwashers.

GRAYWATER means drainage from a dishwasher, shower, laundry bath, and washbasin, and does not include drainage from toilets, urinals, hospitals, and cargo spaces.

CHECKLIST OF OBSERVER SAFETY CONCERNS

1. **Safety inspection decal** - Vessels taking observers are to maintain safe conditions for the protection of observers including adherence to all U.S. Coast Guard and other applicable rules, regulations, or statutes pertaining to safe operation of the vessel. They must have on board a Commercial Fishing Vessel Safety Examination decal certifying that they have been inspected. Check the decal to see that it was issued within the last two years.

2. **Survival craft** - Locate life rafts. Are you assigned to a particular one? Is there enough life raft capacity for every person on board, including the observer? Are the rafts Coast Guard approved? Check service dates, if possible.

3. **Immersion suits/life preservers** - Where are immersion (survival) suits and life preservers (PFDs) located? Are there enough for every person on board? Are the immersion suits Coast Guard approved? Are immersion suits and/or PFDs accessible to everyone at all times?

4. **Life rings** - Is this vessel equipped with life rings? Is there more than one? Are they in accessible locations on deck? Are they labeled with the vessel name?

5. **Flares** - Where are the flares located? Are they parachute flares (as required)? Are they Coast Guard approved? Check the expiration date. Does this vessel also have approved smoke signals?

6. **EPIRBs** - Where is the Emergency Position Indicating Radio Beacon (EPIRB)? Is there more than one? Does the vessel have a FCC Category I (float free, automatically activated) 406 MHz EPIRB?

7. **Fire extinguishers** - Where are fire extinguishers located? Are they accessible? Check the inspection tags - are they up to date? Check the gauges - are they charged and ready to use? Are they of an appropriate type for the area in which they are located (for example, Class A extinguisher in a storage area or living quarters, Class B extinguisher in the galley or engine room, Class C on the bridge)?

8. **First aid** - Does the vessel have a first aid reference book on board? Is there a medicine chest (first aid kit) of suitable size for the number of crew and type of vessel? Is it in an accessible location? Has anyone in the crew had formal first aid training?

9. **Navigation** - Is the vessel equipped with a magnetic steering compass? If so, there should also be a compass deviation card located near the steering station. When was the deviation last checked? Deviation is the difference between what the compass should read, according to the chart, and what it actually reads. Deviation of a magnetic compass is influenced by nearby electronic and/or metallic equipment, any nearby magnetic device, and the vessel's heading.

10. **Radios** - Does the vessel have at least one operating radio (VHF or single-side band) over which the vessel could transmit a mayday call or an automatically generated alarm?

SAFETY REGULATIONS FOR COMMERCIAL FISHING VESSELS

Prepared by Observer Program Staff 1995

Introduction

This summary of the regulations is not complete, nor quoted verbatim from federal law. It is a summary of various Code of Federal Regulations, simplified for the use of NMFS Observers. For further details, or to inspect a copy of the official codified regulations, consult the United States Coast Guard at the following locations: Washington/Oregon (206) 442-5233; Alaska (907) 586-7783.

Subpart A-General Provisions

0§28.30 Applicability

(a) Except as provided in paragraph (b) of this section, this part is applicable to all United States flag vessels not inspected under this chapter that are commercial fishing vessels, fish processing, or fish tender vessels. This includes vessels documented under the provisions of subchapter G of this chapter and vessels numbered by a state or the Coast Guard under provisions of subchapter S of this chapter. Certain regulations in this part apply only to limited categories of vessels. Specific applicability statements are provided at the beginning of those regulations.

(b) This part does not apply to small boat or auxiliary craft that is deployed from a fishing industry vessel for the purpose of handling fishing gear.

§28.50 Definition of terms used in this part.

Accommodations include mess room, lounge, sitting room, recreation room, quarters, toilet space, or shower room.

Approved means approved by the Commandant unless otherwise stated.

Boundary Lines means the lines set forth in 46 CFR part 7. In general, they follow the trend of the seaward high water shorelines and cross entrances to small bays, inlets and rivers from headlands to headlands..

Coastal waters means coastal waters as defined in 33 CFR 175.105. Generally includes the territorial seas - from the shoreline out to three miles.

Cold Water means water where the monthly mean low water temperature is normally 59°F (15 °C) or less.

Commandant means the Commandant of the Coast Guard or an authorized representative of the Commandant Of the Coast Guard.

Open to the atmosphere means a space that has at least 15 square inches (9600 square millimeters) of open area directly exposed to the atmosphere for each cubic foot (0.0283 cubic meters) of net volume of the space.

Operating station means the principal steering station on the vessel from which the vessel is normally navigated.

Pre-engineered means, when referring to a fixed gas fire extinguishing system, a system that is designed and tested to be suitable for installation as a complete unit in a space of a set volume, without modification, regardless of the vessel on which installed.

Similarly qualified organization means an organization which has been designated by the Commandant for the purpose of classing or examining commercial fishing industry vessels under the provisions of §28.76.

Switchboard means an electrical panel which receives power from a generator, battery, or other electrical power source and distributes power directly or indirectly to all equipment supplied by the power source.

Warm water means water where the monthly mean low water temperature is normally more than 59° F. (15° C.).

Watertight means designed and constructed to withstand a static head of water without any leakage, except that "watertight" for the purposes of electrical equipment means enclosed so that equipment does not leak when a stream of water from a hose with a nozzle one inch (25.4 millimeters) in diameter that delivers at least 65 gallons (246 liters) per minute is played on the enclosure from any direction from a distance of 10 feet (3 meters) for five minutes.

Weather deck means the uppermost deck exposed to the weather to which a weather tight sideshell extends.

Weather tight means that water will not penetrate into the unit in any sea condition.

§28.70 Approved equipment and material

Equipment and material that is required by this subchapter to be approved or of an approved type, must have been manufactured and approved in accordance with the design and testing requirements in Subchapter Q of this chapter or as otherwise specified by the U.S. Coast Guard Commandant.

§28.120 Survival craft

Each vessel must carry the craft specified in the table below; the survival craft must be able to accommodate the total number of individuals on board.

Beyond 50 miles of coastline	All documented vessels	Inflatable life raft with SOLAS A pack
Cold water between 20 and 50 miles of coastline	All documented vessels	Inflatable liferaft with SOLAS B pack

§28.125 Stowage of survival craft

Each inflatable liferaft required to be equipped with SOLAS A or a SOLAS B equipment pack must be stowed so as to float free and automatically inflate in the event the vessel sinks. Each hydrostatic release unit used in a float free arrangement must be Coast Guard approved.

§28.135 Lifesaving equipment marking

Ring life buoys and EPIRBs must all be marked with vessel's name and retroreflective tape. Wearable personal floatation devices and exposure suits must be marked with the name of either the vessel, the owner of the device, or the individual to whom it is assigned and retroreflective tape.

§28.145 Distress signals

Each vessel must be equipped with the distress signals specified in following table.

Ocean, more than 50 miles from coastline.	3 parachute flares, hand flares, and 3 smoke signals: all approved for international waters.
Ocean, 3-50 miles from the coastline.	3 parachute flares, hand flares, and 3 smoke signals: all approved for international waters or U.S. waters.

§28.140 Operational readiness, maintenance, and inspection of lifesaving equipment

The master or individual in charge of a vessel must ensure that each item of lifesaving equipment must be in good working order, ready for immediate use, and readily accessible before the vessel leaves port and at all times when the vessel is operated. Inflatable life rafts, hydrostatic releases must be serviced annually by a facility specially approved by the Coast Guard. EPIRBs must be inspected and tested monthly; this can be done by the master or other knowledgeable individual. An escape route from a space where an individual may be employed or an accommodation space must not be obstructed.

Every fire extinguisher is Classified by letter and by Roman numeral (such as B-II, A-III, C-I, etc.); the letter identifies the type of fire the contents will put out while the number refers to the size of the extinguisher. Size I is the smallest; size V is the largest. Sizes I and II are considered hand portable.

Classes of fires:
Class A fires are fuels by common combustibles - wood, paper or plastics.
Class B fires are fueled by oil, grease, gas or other substances that give off large amount of flammable vapors
Class C fires involve electric equipment, conductors, or appliances.

§28.165 Injury placard

Each vessel must have posted in a highly visible location accessible to the crew a placard measuring at least 5 inches by 7 inches which reads:

Notice

Report All Injuries

United States law, 46 U.S. Code 10603, requires each seaman on a fishing vessel, fish processing vessel, or fish tender vessel to notify the master or individual in charge of the vessel or other agent of the employer regarding any illness, disability, or injury suffered by the seaman when in service to the vessel not later than seven days after the date on which the illness, disability, or injury arose.

(a) Suitable hand covers, guards, or railing must be installed in way of machinery which can cause injury to personnel, such as gearing, chain or belt drives, and rotating shafting. This is not meant to restrict necessary access to fishing equipment such as winches, drums, or gurdies.

(b) Each exhaust pipe from an internal combustion engine which is within reach of personnel must be insulated or otherwise guarded to prevent burns.

§28.225 Navigational Information.

(a) Each vessel must have at least the following navigational information on board:

(1) Marine charts of the area to be transited, published by the National Ocean Service, Defense Mapping Agency Hydrographic/Topographic Center, U.S. Army Corps of Engineers that-

(i) Are of a large enough scale and have enough detail to make safe navigation of the area possible; and

(ii) Are currently corrected.

(2) For the area to be transited, a currently corrected copy of, or applicable currently corrected extract from, each of the following publications:

(i) U.S. Coast Pilot; and

(ii) Coast Guard Light List.

(3) For the area to be transited, the current edition of, or applicable current extract from, each of the following publications:

(i) Tide tables published by the National Ocean Service: and

(ii) Tidal current tables published by the National Ocean Service. or river current publication issued by the U.S. Army Corps of Engineers.

(b) Each vessel of 39.4 feet (12 meters) or more in length that operates shoreward of the COLREG Demarcation Lines must carry on board and maintain for ready reference a copy of the Inland Navigation Rules

§28.230 Compasses

Each vessel must be equipped with an operable magnetic steering compass with a compass deviation table at the operating station.

§28.235 Anchors and radar reflectors

(a) Each vessel must be fitted with an anchor(s) and chain(s), cable, or rope appropriate for the vessel and the waters of the intended voyage.

(b) A single radio transceiver capable of meeting the requirements of paragraphs (a) (2) and (3), or paragraphs (a) (2), (3), and (4) of this section, is acceptable.

(c) Satellite communication capability with the system servicing the area in which the vessel is operating is acceptable as an alterative to the requirements of paragraphs (a)(2), (a)(3), or (a)(4) of this section.

(d) A cellular telephone capable communicating with a public coast station or a U.S. Coast Guard station serving the area in which the vessel is operating is acceptable as an alterative to the requirements of paragraphs (a)(2), (a)(3), or (a)(4) of this section.

(e) A radiotelephone transceiver installed on board a vessel before September 15, 1991, capable of transmitting and receiving on frequencies on the 4-20 MHz band may continue to be used to satisfy the requirements of paragraphs (a)(3) and (a)(4) of this section.

(f) The principle operating position of the communication equipment must be at the operating station.

(g) Communication equipment must be installed to ensure safe operation of the equipment and to facilitate repair, it must be protected against vibration, moisture, temperature, and excessive currents and voltages. It must be located so as to minimize the possibility of water intrusion from windows broken by heavy seas.

(h) Communication equipment must comply with the technical standards and operating requirements issued by the Federal Communications Commission.

(i) All communication equipment must be provided with an emergency source of power that complies with §28.375.

§28.250 High water alarms.

On a vessel 36 feet (11.8 meters) or more in length, a visual and audible alarm must be provided at the operating station to indicate high water level in each of the following normally unmanned spaces:

(a) A space with a through-hull fitting below the deepest load waterline, such as the lazarette;

(b) A machinery space bilge, bilge well, shaft alley bilge, or other space subject to flooding from sea water piping within the space; and

(c) A space with a non-watertight closure, such as a space with a non-watertight hatch on the main deck.

(b) The instruction identified in paragraphs (d)(6), (d)(7), (d)(8), and (d)(9) of this section, may be kept readily available as an alterative to posting.

(c) On a vessel which operates with less than 4 individuals on board, the emergency instructions may be kept readily available as an alternative to posting.

(d) The emergency instructions required by this section must identify at least the following information, as appropriate for the vessel:

(1) The survival craft embarkation stations aboard the vessel and the survival craft to which each individual is assigned;

(2) The fire and emergency signal and the abandon ship signal;

(3) If immersion suits are provided, the location of the suits and illustrated instructions on the method for donning the suits;

(4) Detailed procedures for making a distress call;

(5) Essential action that must be taken in an emergency by each individual, such as:

(i) Making a distress call.

(ii) Closing of hatches, airports, watertight doors, vents, scuppers, and valves for intake and discharge lines which penetrate the hull, stopping of fans and ventilation systems, and operation of all safety-equipment.

(iii) Preparing and launching of survival craft and rescue boats.

(iv) Fighting a fire.

(v) Mustering of personnel including-

(A) Seeing that they are properly dressed and have put on their life jackets or immersion suits; and

(B) Assembling personnel and directing them to their appointed stations.

(vi) Manning of fire parties assigned to deal with fires.

(vii) Special duties required for the operations of fire fighting equipment.

(6) The procedures for rough weather at sea, crossing hazardous bars, anchoring of the vessel, such as:

(i) Close all watertight and weather tight doors, hatches and airports to prevent taking water aboard or further flooding in the vessel.

(ii) Keep bilges dry to prevent loss of stability due to water in bilges. Use power driven bilge pump, hand pump, and buckets to dewater.

(iii) Align fire pumps to use as bilge pumps, if possible.

(iv) Check all intake and discharge lines which penetrate the hull for leakage.

(v) Personnel should remain stationary and evenly distributed.

(vi) Personnel should don life jackets and immersion suits if the going becomes very rough, the vessel is about to cross a hazardous bar, or when otherwise instructed by the master or individual in charge of the vessel.

(b) Participation in drills. Drills must be conducted on board the vessel as if there were an actual emergency and must include participation by all individuals on board, breaking out and using emergency equipment, testing of all alarm and detection systems, donning protective clothing, and donning immersion suits, if the vessel is so equipped.

(d) The viewing of videotapes concerning at least the contingencies listed in paragraph (a) of this section, whether on board the vessel or not, followed by it discussion led by an individual familiar with these contingencies will satisfy the requirement for instruction but not the requirement for drills in paragraph (b) of this section or for the safety orientation in paragraph (e) or this section.

(e) *Safety orientation.* The master or individual in charge of a vessel must ensure that a safety orientation is given to each individual on that has not received the instruction and has not participated in the drills required by paragraph (a) of this section before the vessel may be operated.

(f) The safety orientation must explain the emergency instructions required by §28.265 and cover the specific evolution listed in paragraph (a) of this section.

§4.05-1 Casualty Reporting Requirements

The owner, agent master, or person in charge of a vessel involved a marine casualty shall give notice as soon as possible to the Coast Guard Marine Safety or Marine Inspection Office whenever the casualty involves any of the following:

(a) All accidental grounding and any intentional grounding which also meets any of the other reporting criteria or creates a hazard to navigation, the environment, or safety of the vessel;

(b) Loss of main propulsion or primary steering, or any associated component or control system, the loss of which causes a reduction of the maneuvering capabilities of the vessel. Loss means that systems, component parts, sub-systems, or control systems do not perform the specified or required function;

(c) An occurrence materially and adversely affecting the vessel's seaworthiness or fitness for service or route, including but not limited to fire, flooding, or failure or damage to fixed fire extinguishing systems, lifesaving equipment, auxiliary power generating equipment, or bilge pumping system;

(d) Loss of life;

(e) Injury which requires professional medical treatment beyond first aid and, in the case of a person engaged or employed on board a vessel in commercial service, which renders the individual unfit to perform routine vessel duties.

(f) An occurrence not meeting any of the above criteria but resulting in damage to property in excess of damage to property in excess $25,000. Damage cost includes the cost of labor and material to restore the property to the service condition which existed prior to the casualty, but does not include the cost of salvage, cleaning, gas freeing, drydocking, or demurrage.

Your role in a Coast Guard boarding is as a source of objective information for the boarding party. The boarding party will conduct their own inspections and investigations, and they may or may not require your assistance. You should cooperate fully, and not hamper the investigation.

STEPS TO TAKE IF YOU SUSPECT A VIOLATION

Common sense and good judgement should prevail when you suspect that a violation has occurred on your vessel or at your plant. The actions you decide to take should depend upon the type of suspected violation, the circumstances under which it occurred, and the actions and attitudes of vessel or plant personnel. In any case there are certain steps you should take: 1)investigate; 2) advise; and 3) document. Contemporaneous documentation is very important. It should be taking place throughout the situation, from the time you first suspect the violation, through your investigation, and including any actions taken by you and/or vessel/plant personnel. Do not jeopardize your position on the vessel or at the plant by resorting to "cloak and dagger" techniques to obtain evidence. Investigation and documentation of a suspected violation should be done openly as part of your routine duties.

INVESTIGATE

Investigation may be necessary to find out if a violation has actually occurred. There are obvious cases in which investigation is not needed, such as witnessing a crew member throwing plastic bags overboard, but other suspected violations may not be so obvious. Depending on the type of suspected violation, you may need to double check your measurements, calculations, and methods, check scale calibrations, check production figures and logbook entries - BE THOROUGH. You should ask the captain, plant manager, or other vessel/plant personnel to clarify any questions you may have. By asking questions you may be able to determine that no violation has occurred. You should consider contacting Observer Program staff or NMFS Enforcement personnel to see if a particular action would be considered a violation.

ADVISE

Once you feel that a violation has taken place, it is usually best to talk to the captain or plant manager, and other individuals involved. (There may be overlap between the investigative and advisory phases, but documentation should be taking place throughout the whole process.) When you bring the suspected violation to the attention of vessel or plant personnel, you may be able to insure that it does not happen again. However, remember that it is not your position to advise vessel or plant personnel about fishing regulations. Suspected violations may be the result of misinterpretation of regulations, misunderstanding of observer work objectives, carelessness in record keeping, etc. For example, you might have witnessed crew members collecting prohibited species in a basket in order to discard them, not to take them to the cook.

You should discuss the suspected violation with the captain or plant manager whether or not he or she is aware of it. If vessel or plant workers are doing something without the knowledge of the captain or plant manager, you will be doing him or her a favor. Direct him or her to the appropriate authority if there are questions about regulations - do not give authoritative answers on your own. Your aim should be to keep vessel or plant personnel advised of suspected violations. It is up to

WHO:

1. Identify the vessel or plant.
    a. vessel/plant name
    b. permit number
    c. vessel type

Identify the individuals involved in the suspected violation.

a. name(s)
b. position on vessel or at plant (captain, engineer, deckhand, etc.)
c. function or duties, especially if related to suspected violation
d. identify the individual(s) who is (are) in the primary position(s) of authority, if not already named. Include any information, including language capabilities, which may have had an effect on your ability to communicate.

WHAT:

Describe in narrative form the events concerning the suspected violation and the circumstances under which they occurred. If you do this immediately after the event the details will be easier to remember. Record everything, including what made you suspicious, what you discovered in the investigative stage, what you advised any personnel, their reactions to your advice or inquiry, and what happened (or didn't happen) as a result of your talk. Use direct quotes whenever possible. Record any further occurrences of the suspected violation.

Make certain you have gathered all the evidence that you feasibly can to convince an outside person that a violation actually occurred. Use copies of the logbooks, photographs where appropriate, and any other documents written by you and/or vessel or plant personnel. Make sure all evidence is dated.

WHY: (if known)

If possible, try to determine why the suspected violation occurred. If you use your own conclusions or opinions, identify them as such. Try to be as objective as possible.

Was the suspected violation committed intentionally or unintentionally? Violations are not always intentional, but whether they are or aren't may affect the severity of the punishment. The following are types of questions you may want to ask yourself:

1. Could it have been a careless mistake, such as a mathematical or transcription error in the logbook?

2 Were there unusual circumstances beyond the control of vessel or plant personnel which may have played a factor? This might include severe weather conditions, mechanical breakdowns, or injuries.

3. If you feel the suspected violation was intentional, on whose orders or with whose knowledge do you feel it was done, and why? State why you feel it was intentional, especially in cases

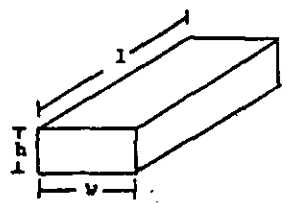
APPENDIX

VOLUME AND PRODUCT FORMULAS

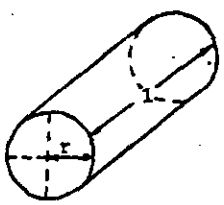
Number of Product Units x Average Unit Weight = Total Weight of Product
Product Weight ÷ Recovery Rate = Whole Weight of fish used to make the product
Product Weight x Conversion Factor = Whole or Fresh Weight of fish used for product

Area of a circle = πr^2 Circumference = $2\pi r$ ($\pi = 3.1416$)
Area of a square or rectangle = length x width
Area of a triangle = ½ base x height
Volume of a right angle cone = $1/3\pi r^2 h$
Length of the triangle hypotenuse "c" where a and b equal the length of the opposite two sides.

$$a^2 + b^2 = c^2 \quad \textit{and,} \quad \sqrt{c^2} = c$$

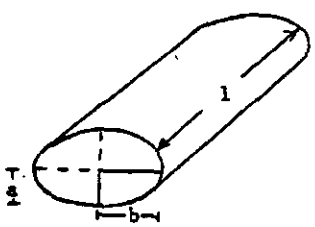


Rectangular solid
Volume = height x width x length
V = hwl

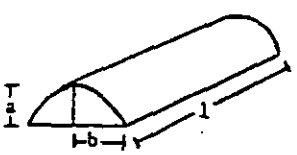


Cylinder
Volume = π x radius^2 x length
V = $\pi r^2 l$

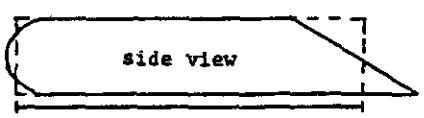
(π=3.1416)

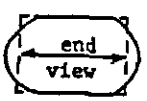


Ellipsoidal solid
Volume = π x short radius x long radius x length
V = π abl



Semi-ellipsoidal solid
Volume = ½πabl
V = ½πabl





(Allowances can be made for irregular shapes or partially filled portions of the net by the way in which the measurements are taken.)

RELATIONSHIP OF HALIBUT LENGTHS TO WEIGHT (LIVE WEIGHTS)

Length (cm)	Kilograms	Length (cm)	Kilograms	Length (cm)	Kilograms
146	43.06	188	97.39	230	187.75
147	44.02	189	99.11	231	190.40
148	45.00	190	101.10	232	193.09
149	45.99	191	102.83	233	195.80
150	47.00	192	104.58	234	198.53
151	48.02	193	106.36	235	201.29
152	49.06	194	108.16	236	204.08
153	50.12	195	109.97	237	206.90
154	51.18	196	111.81	238	209.74
155	52.27	197	113.67	239	212.61
156	53.37	198	116.00	240	215.50
157	54.49	199	117.45	241	218.43
158	55.62	200	119.37	242	221.38
159	56.77	201	121.32	243	224.35
160	57.93	202	123.28	244	227.36
161	59.11	203	125.27	245	230.39
162	60.31	204	127.28	246	233.45
163	61.53	205	129.32	247	236.54
164	62.76	206	131.37	248	239.66
165	64.01	207	133.45	249	242.80
166	65.27	208	135.55	250	245.98
167	66.55	209	137.67		
168	67.83	210	139.82		
169	69.17	211	141.99		
170	70.51	212	144.18		
171	71.86	213	146.39		
172	73.23	214	148.63		
173	74.62	215	150.89		
174	76.02	216	153.18		
175	77.45	217	155.49		
176	78.89	218	157.82		
177	80.35	219	160.18		
178	81.83	220	162.56		
179	83.33	221	164.97		
180	84.85	222	167.40		
181	86.39	223	169.85		
182	87.94	224	172.33		
183	89.52	225	174.84		
184	91.11	226	177.37		
185	92.73	227	179.93		
186	94.36	228	182.51		
187	96.01	229	185.11		

PRODUCT RECOVERY RATE SAMPLING

A recovery rate represents the proportion of the organism that is used in the factory products. The recovery rate is also referred to as the "product recovery rate (PRR)" or the "recovery ratio". Recovery rates can be used in estimating the weight of a catch from the tonnage of products produced from that catch by using the following equation and then adding discard weight, if any.

$$\frac{\text{Product Weight}}{\text{Recovery Rate}} = \text{Whole Weight (before processing)}$$

Recovery rates are commonly expressed as a percent or as a ratio. Headed and gutted cod may have a recovery ratio of .62 to 1, or 62% recovery, while fish frozen whole would have a recovery ratio of 1.00 to 1, or 100% recovery. A **conversion factor** is a number which can be multiplied times the product weight to obtain the round weight (whole weight of the fish). A conversion factor **is always greater than 1** (for example, the conversion factor of surimi weight to pollock weight may be 6.67). To convert a conversion factor to a recovery rate, divide the number 1 by the conversion factor.

A wide range of recovery rates are used to describe the utilization of different species in a variety of products. The type of processing, the size of the fish, the area and season of the year, the experience of the processing crew, and the vessel type may all have a bearing on the recovery rate of a particular species. Since there is a need to update the recovery rates currently being used by data managers, observers are asked to record the rates used on their vessels, and if possible, to run tests to determine recovery rates on their own.

To determine your own recovery rates for particular products, you must observe the following procedures: First of all, you would obtain a sample (~ 50 fish for the first of three replications) of the fish that are waiting to be processed. **They should be sorted to species and be of the size and condition of those that are normally processed in one particular way.** For example, in order to obtain the recovery rate for roe from pollock, select a basket of roe-bearing, female pollock of the sizes normally used. However, within any species/size category, your sample should be taken at random. Weigh the sample of whole fish before processing, this would be called the "whole weight", "fresh weight" or "round weight". Have these fish processed by the factory crew as usual, then weigh the resulting product. The weight of the product divided by the weight of the fish before processing is the recovery ratio.

$$\frac{\text{Product Weight}}{\text{Fresh Weight}} = \text{Product Recovery Rate}$$

Actually there are two sampling approaches possible. In method A, as explained above, the observer collects a sample of fish, has those same fish processed and weighs the resultant product of those fish. This method is preferred over method B, particularly where the number of samples and the sample size (number of fish per sample) is limited. In method B, the observer weighs a sample of fish waiting to be processed for a particular product as before. The observer then collects products from the same **number** of fish but not necessarily the **same** fish. For example, if you weighed 60 fish in the round, destined for fillets, 120 fillets would need to be weighed. (The products weighed

Form 8US - Product Recovery Rates

This form is to be filled out with the product recovery rates that the ship or processing plant personnel are using, and the recovery rates that the observer has obtained through their own tests. Points to note about Form 8:

1. Enter the year and month (columns 10 - 13) in which the information was obtained and for which the data applied.

2. Likewise, enter the code for the area in which you collected your own recovery data and the area for which the vessel data applies.

3. Use a separate sheet for each area, month, vessel or plant sampled.

4. Write the name of the species or species group which is processed and its appropriate code (columns 17 - 19) from the species code list used for Form 3US. Observer-determined recovery data should be listed by each particular species, but figures supplied by vessel personnel are often applied to a group of species. "Unidentified fish" (code 901) may be used for the categories of fish and fish waste turned into fish meal and fish oil. Other possibly useful codes are flatfish unidentified (code 100), turbot unidentified (143), and rockfish unidentified (300).

5. Describe the product and enter the matching product code in columns 20 - 21 (see "List of Alaska Product Types" on a following page.) If in doubt of the appropriate code, draw a picture and take detailed notes describing the product. Discuss the unidentified product with the debriefer upon your return. Record only those products which were actually produced while you were aboard.

6. Indicate in column 22 whether the rates were determined by sampling Method A (products from the **same** fish are weighed after processing), or Method B (products from the same **number** of fish are weighed after processing).

7. Columns 23 - 29 are for the fresh weight of your sample fish before processing, to two decimal places, for each test you do. This weight can be in either pounds (LB) or kilograms (KG) which is indicated in columns 30 - 31.

8. Columns 32 - 38 are for the product weight, to two decimal places, for each test you do. This weight can be in either pounds (LB) or kilograms (KG) which is indicated in columns 39 - 40.

9. Enter, to two decimal places, the recovery ratio you calculate in columns 41 - 43 and the ratio used by the vessel or plant personnel in columns 44 - 46. If the vessel or plant personnel use different values based on area, time, size of fish, etc. then use the value they are using at the time you do PRR testing or data gathering.

PRODUCT TYPES AND CODES

Product Type Codes	Description
1	Whole fish/food fish (PRR = 1.00)
2	Whole bait fish (PRR = 1.00)
3	Bled only (throat, or isthmus, slit to allow blood to drain)
4	Gutted only
6	H & G, with roe
7	H & G, Western cut (head removed in front of pectoral girdle)
8	H & G, Eastern cut (head removed behind pectoral girdle)
10	H & G, tail removed
11	Kirimi (head, gut and tail removed by cuts perpendicular to spine)
12	Salted and split
13	"Wings" (On skates, side fins are cut off next to body)
14	Roe only (eggs, either loose or in sacs, or skeins)
15	Pectoral girdle only
16	Heads
17	Cheeks (opercular bone and muscles) or chins (lower jaw, muscles, flesh)
18	Chins (lower jaw, muscles and flesh)
19	Belly flaps (flesh in region of pelvic and pectoral fins)
20	Fillets with skin and ribs
21	Fillets with skin, no ribs
22	Fillets, with ribs, no skin
23	Fillets, skinless/boneless
24	Deep skin fillets
30	Surimi (paste from any of the fish flesh and additives)
31	Minced fish
32	Fish meal
33	Fish oil
34	Milt (in sacs, or testes)
35	Stomachs (includes all internal organs)
36	Octopus/squid mantles (flesh after removal of viscera and legs)
37	Butterfly (split, no backbone, head removed, fillets still attached)
95	Discards at plant. Floaters/shoreside in plant discard of whole groundfish and prohib.'s
96	Decomposed fish, previously caught fish which is caught again and discarded. (PRR 0.0)
98	Discards, at sea. Groundfish and prohibited sp. discarded by catcher vessels, c/p, and ms.
99	Dockside discard; discard after delivery and before processing.

NMFS REPORT GROUP CODES FOR VESSEL LOGS

Sp. group codes	Mgmt Areas	Species Common Names
110	all	Pacific cod
118	GOA	*Deep water flatfish (rex sole, Dover sole, Greenland turbot)*
119	GOA	Shallow water flatfish (all flatfish **except** deepwater flatfish, flathead sole and arrowtooth flounder) Includes yellowfin and rock sole
120	BSAI	Other flatfish (all flatfish except yellowfin, rock sole, arrowtooth flounder, & Greenland turbot). Includes flathead sole.
121	BSAI	Arrowtooth flounder and/or Kamchatka flounder (Atheresthes stomias and/or Atheresthes evermanni)
121	GOA	Arrowtooth flounder (Atheresthes stomias)
122	GOA	Flathead sole
123	BSAI	Rock sole
125	GOA	Rex sole
127	all	Yellowfin sole
130	all	Ling cod (non-allocated)
134	BSAI	Greenland turbot
136	GOA	Northern rockfish
139	BSAI	Other rockfish (all rockfish and thornyheads except POP, sharpchin, northern, shortraker, and rougheye)
141	all	Pacific Ocean Perch (Sebasted alutus only)
143	GOA	Thornyhead rockfish (all Sebastolobus species)
144	GOA	Slope rockfish (Aurora, Blackgill, Chilipepper, Darkblotch, Greenstriped, Harlequin, Pygmy, Shortbelly, Splitnose, Stripetail, Vermillion, Yellowmouth, Bocaccio, Silvergrey, and Redstripe.
160	all	Sculpins
166	GOA	Sharpchin rockfish
168	GOA	Demersal shelf rockfish (China, Copper, Quillback, Rosethorn, Tiger, Yelloweye, Canary and Redbanded
169	GOA	Pelagic shelf rockfish (black, blue, dusky, widow and yellowtail)
171	GOA, AI	Shortraker and/or rougheye rockfish (Sebastes borealis and/or S. aleutianus)
172	AI	Sharpchin and/or northern rockfish (Sebastes zacentrus and/or S. polyspinis)
173	BS	Other red rockfish (shortraker, rougheye, sharpchin, and northern) **(Not for observer use!)**
193	all	Atka mackerel
213	all	*Grenadier (non-allocated)*
270	all	Pollock, 270A = "A" season, Jan. - Jun, 270B= "B" season, Jul. - Dec.shoreside processing
510, 511, 516	all	Smelt, eulachon, capelin
689,700	all	Sharks, skates
710	all	Sablefish
875	all	Squid

Species Prohibited in Groundfish Fisheries

000	all	Salmon, unspecified	001	all	Crab, unspecified
200	all	Pacific halibut	920	all	Crab, unspecified king
235	all	Pacific herring	921	all	Crab, red king
410	all	Salmon, chinook	922	all	Crab, blue king
420	all	Salmon, sockeye	923	all	Crab, golden/brown king
430	all	Salmon, coho	930	all	Crab, unspecified tanner
440	all	Salmon, pink	931	all	Crab, bairdi tanner
450	all	Salmon, chum	932	all	Crab, opilio
540	all	Trout, steelhead			

available, freeze the snout and ask your debriefer for salt when you come in. Please do not dehydrate snouts by drying them in air. This makes it nearly impossible to dissect out the wire tag. The plastic tag should be filled out in pencil and the scale sample number written on the top.

Crab: The Alaska Department of Fish and Game along with other agencies have tagged crab with bright yellow or orange plastic, "spaghetti" tags. If one of these tagged crabs are found, record the needed information and measure the crab as best you can to the nearest millimeter, even if you were not assigned calipers or dividers to measure crab. (Refer to "Length Measurements For Various Species" in Appendix). Sometimes tagged crabs that have been caught are alive and in good condition. If this is the case, record the pertinent information along with the tag number and release the crab as quickly as possible.

Sablefish: The National Marine Fisheries Service, Pacific Biological Station, and the Alaska Department of Fish and Game have tagged sablefish on the dorsal surface posterior to the dorsal fin with pink, red, yellow, and blue spaghetti tags since 1981. Since then, these agencies have compiled considerable information on recruitment, age and growth, distribution, and migration of sablefish in the Bering Sea and Gulf of Alaska. This information will be supplemented with an age validation study planned for 1992 that requires the extraction of otoliths from tagged sablefish.

Otolith Extraction Procedures: Two procedures are used to extract otoliths from tagged sablefish. The first procedure is for tagged sablefish whose otoliths have been exposed to OTC, a light-sensitive bone-marking chemical. Sablefish treated with OTC have **"GROWTH STUDY - REWARD FOR WHOLE FISH"** written on the tags or have **BLUE** spaghetti tags. Otoliths from fish with these tags should be extracted and placed in opaque vials that exclude light. If opaque vials are unavailable, the otoliths can be saved in standard translucent otolith vials wrapped completely with black electrical tape or wrapped thoroughly with aluminum foil. Put the tag in the vial along with the otoliths. Another procedure is to remove the head, place it in a plastic bag, and then freeze the head with the tag enclosed in the bag. The cut to remove the head should be between the operculum and the pelvic fin to ensure that the otoliths are not exposed to light.

The second procedure is for tagged sablefish whose otoliths have not been exposed to OTC. These tagged fish do not have special wording on the tag. Otoliths from these fish are extracted in the usual manner and placed in a white or clear translucent vile with the tag enclosed in the vial.

Store **all** otoliths in a solution of 50% ethyl alcohol and 50% water with the tag enclosed in the vial. If vials are unavailable, it is very important to clean the otoliths thoroughly, then dry and place them in paper envelopes with the tag enclosed. Your debriefer will have you fill out a **Tagged Fish Information Form** for each tagged fish.

Information and Data Collection: Remember to obtain as much information as possible: tag prefix and tag number, latitude and longitude of capture, date of capture, depth of capture, length, weight, sex and maturity of gonads, vessel gear type, and the fisherman's name and permanent address. The fishermen will receive a reward and recovery information for each tagged fish turned in. Fisherman have a choice of a baseball cap, an incentive cash prize, or a 5$ reward for each tag turned in. Be sure to enclose the fisherman's address so that they can receive the reward and recovery information.

TAGGED FISH INFORMATION FORM

Cruise No.: _____ Vessel Code: _____ Observer Name _____

Ship Name: _____

Permit Number: _____

Captain (or reward recipient's) Name: _____

Address: _____

_____

_____

Species: _____

Tag Prefix (often a two letter code) and Serial No.: _____

Tagging Agency (circle one): Seattle Auke Bay Nanaimo Shimizu IPHC Other _____

Time and Date of Capture: _____

Capture Location (lat. & long.): _____

Sex and Maturity of Gonads (immature, mature, spawning): _____

Length (fork length in cm): _____

Affix the tag or vial here (with tape):

Weight (total wt. in kg): _____

Capture Depth (fathoms): _____

Vessel/Gear Type: _____

General Appearance (poor body condition, good body condition):

Condition of Tagging Wound (healthy healed tissue, open wound):

Other Comments:

HOW TO SEX FISH

During training you will have been shown the differences in the appearances of gonads of various species and given an opportunity to practice determining the sex of several fish species. Due to lack of availability of specimens of certain species for dissection purposes, you may not have been able to practice on your particular sampling species, but you should be able to determine the sex of fish on your own with practice. In determining sex, it is generally easiest to start with large, mature fish and work down in size to small, immature specimens. Thoroughly dissect a few fish and identify the various internal structures so that you know what you are looking for.

The Japanese have a way of telling the sex of pollock without cutting them open. This method uses the relative size and shape of the pelvic fins to distinguish male from female. Since this method requires a fair amount of judgment and works consistently only for the larger specimens, observers are not to use this method. Pollock can be more accurately sexed by splitting the belly and inspecting the gonads, and with practice this can be accomplished very rapidly.

Halibut should not be sexed, but all other pertinent data should be obtained before releasing the fish. Most salmon have a very poor chance of surviving after being caught in a trawl net, especially if many scales have been lost, so identify the species, look for tags and obtain the individual lengths, weights, scale samples, and cut them to determine their sex before discarding the fish over-board. For most of the fish species observers must sex the following information should be of help.

Cod, Pollock and Hake

Where to look:

The gonads of all cods and pollock are found directly above the vent near the top of the visceral cavity. An easy way to find the gonads of gadids (with a little practice) is to slit the stomach open near the vent, then use your thumb to scoop the viscera out of the visceral cavity. With a little practice, the gonads can be exposed for examination on your thumbnail.

What to see:

The ovaries are paired bags or sacs which are typically pink or orange in color and slightly translucent. When immature the sacs may be clear but they can be distinguished by shape and position. When the ovaries are mature they tend to be bright orange and will often nearly fill the entire posterior end of the visceral cavity and you should be able to see the eggs inside the ovaries. The ovary sac may or may not have black and white blotches on it. Sometimes the ovary of a fully mature female cod will be entirely black in color.

The testes look very different from the ovaries. They are always opaque. They are in the same location as the ovaries but when immature, they will only be a thin filament with a tiny ruffled edge and are attached to the vent. In this stage, the testes are very small and must be looked for very carefully. As an immature male gadid begins to develop, the lower side of the filament can be seen to have very small and fine convolutions. Immature testes typically will be dark pink due to the ample blood supply. Then, their color turns to cream tinged with pink as milt develops. The lower edge of the testes then fills with milt as the fish matures and the convolutions finally will be thick, opaque and white; filling the inside of the fish.

What to see:

The ovaries are sac shaped and will be filled with eggs and then live young (rockfish bear developed young, not eggs). These bags are soft and flaccid, and generally are clear, but may be pink, orange or yellow color. Small round eggs can be seen often in very immature individuals. Rockfish ovaries are about two or three times as long as they are wide.

Testes are rod-like, they feel firm and are opaque. They are often colored with tan on one side of the testes which fades into a clearer grey on the other side. Some fish may have testes that are tinged with yellow or pink. They are more elongate than ovaries; often about five times as long as they are wide - although this is variable, they will get longer as they approach maturity.

Atka Mackerel

Where to look:

Like rockfish, Atka mackerel gonads are found at the top of the visceral cavity directly above the vent. Atka Mackerel external coloring is sexually dimorphic where often the male's light colored vertical bars are tinged with yellow.

What to see:

Ovaries are clear bags filled with a mixture of small round eggs that are various shades of olive green, brown, tan, and when hydrated, clear. Atka Mackerel spawn in spurts so eggs in the ovaries will be a mix of different sizes and different stages of development.

Atka mackerel testes are similar to rockfish, described above.

Salmon

Where to look:

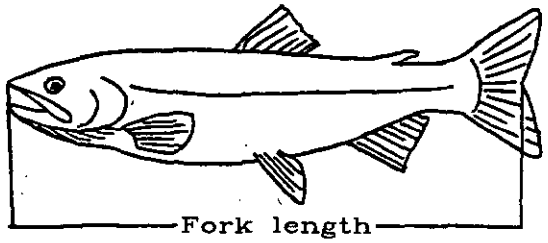
The gonads of salmon are thin, clear filaments which are found along the top of the visceral cavity just below the backbone. Salmon gonads, unlike other fish, will be found near the anterior (head) end of the visceral cavity.

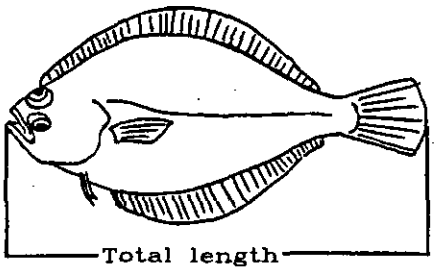
What to see:

Sexing salmon is relatively easy. Even very young females produce eggs. To sex the fish find the clear tissue of the gonad and look for the presence or absence of the relatively large, round, orange eggs. If eggs are present then the fish is a female. If eggs are absent then the fish is a male.

LENGTH MEASUREMENTS FOR VARIOUS SPECIES

Fork length measurement used for length frequency sampling of all groundfish.



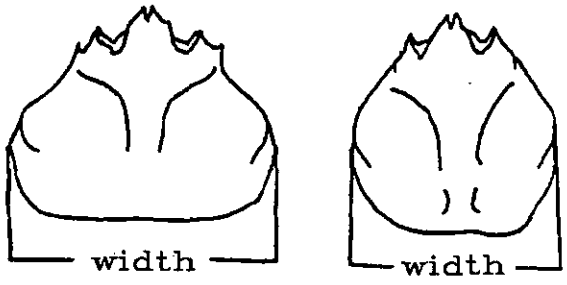


Measured from the *tip of snout to the end or tip of the middle fin rays of the tail.* Fork length is the same as total length in round tailed flatfish as shown above.

Observers given the special project of measuring king and tanner crab will be provided with dividers to use in conjunction with a measurement scale on a plastic form. Spread the dividers across the <u>width</u> of Tanner crab carapaces at their widest points, excluding spines. Without moving the arms of the instrument, lay one arm of the divider on the "start line" at the bottom of the plastic form and, when placed perpendicular to the start line, where the tip of the other arm lands, record the measurement with a tally mark on the 5 mm space. Measurements are grouped in 5 mm increments starting at 3 mm. For example, crabs 41 to 45 mm in size are recorded as 43 mm; crabs 46 to 50 mm are recorded as 48 mm. Thus, check your entries on Form 7US to see that all records of crab measurements end in the digits three or eight.

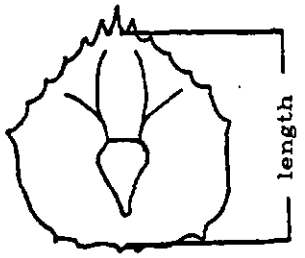
The carapace <u>length</u> of king crab should be measured. Measure from the right eye socket to the midpoint of the posterior margin of the carapace. Be careful not to let the tip of the divider arm slip **into** the eye socket below the carapace surface; keep the instrument on the **rim** of the carapace socket at it's deepest point. Record the length to the nearest 5 mm size group as explained for Tanner crab above. (Refer to the illustration below.)

Carapace Width Used For:



Tanner (Snow) Crab
Measured from the widest points of carapace, excluding spines, to the nearest 5 mm.

Carapace Length Used For:



King Crab
Measured from right eye socket to the middle of the posterior margin of the carapace, excluding spines.

Returning to Seattle with Frozen Specimens:

A) If your plane is not leaving immediately, maybe your place of lodging will hold it for you in their freezer. If not, temporarily store it at a NMFS field office. Sometimes a fish processing plant will allow you to keep **well labeled** fish in their freezer. Arrange this through the plant observer.

B) Tell the airlines at check-in that you have a package to keep frozen. If they are wrapped very well, it will help keep them frozen.

C) If you arrive in Seattle on a weekend, phone first and then take the fish to the Seattle Aquarium if you can't keep it at your lodgings. Their weekend, daytime phone number is: 386-5018 or 386-5019 and their 24-hour phone number is: 386-4359. Tell the aquarium staff you are a NMFS observer, get directions and ask them to hold it for you until Monday.

D) If you arrive on a weekday within working hours, just bring the fish into the wetlab freezer. Put incoming fish on one of the shelves just inside the freezer door, on the left. Then be sure and tell your debriefer that you have frozen fish brought back, and the reason you collected them.

Annex K

Shooting whales (photographically) from small boats: An introductory guide

Sally A. Mizroch[1] and Michael A. Bigg[2]

[1] *National Marine Mammal Laboratory, Seattle, WA, USA*
[2] *Pacific Biological Station, Nanaimo, B.C., Canada*

As photo-identification collections grow and aids such as computerised video matching are increasingly used, great attention must be paid to photographic techniques. For more detail on examination of negatives and prints, see Bigg, Balcomb and Ellis (1986).

Choice of film

For whales that are mainly black, gray and/or white, high speed black and white (B&W) film, such as *Ilford* HP-5, is preferred. Colour slide film generally does not have the detail or latitude to be used on a regular basis for ID work from small boats, although in some cases right whale callosity/cyamid patterns are slightly better defined using a high speed colour film, such as *Kodachrome* 200 Professional. If there is any doubt about which type of film to choose, try shooting B&W and colour side by side or alternately for a few weeks, and then compare ID's and the proportion of good, usable shots.

Once the correct film has been chosen, the components of taking a good ID shot are: framing, focusing, exposure, developing and printing.

Framing and focusing

Before beginning field work with a new species, it is important to examine as many good identification photographs of your species as possible, to train your eye to the detail of the ID image. For example, look at Sears, Wenzel and Williamson (1987) for blue whales, Bigg, Ellis, Ford and Balcomb (1987) for killer whales and Katona, Harcourt, Perkins and Kraus (1980) for humpback whales.

Always shoot some practice rolls on land before going into the field, both to check the camera and to practice fast focusing. If possible, use a fast auto-focus camera, or practice focusing and timing by shooting any fast-moving activities, such as sporting events. Make sure to hold the camera very steady. Under some light conditions, such as haze or fog, you may need to switch from auto-focus to manual focus. Always take a back-up camera system in case the primary system develops any technical problems.

Timing is important when taking an ID shot. Determine the most distinctive ID features of your species, and take photos of those parts when they are most exposed. For example, for killer whales, photograph the saddle patch when it is out of the water (Figs 1a and 1b), not as it first begins to surface (Fig. 1c). With humpback whales, the back will show a pronounced arch or hump as the animal

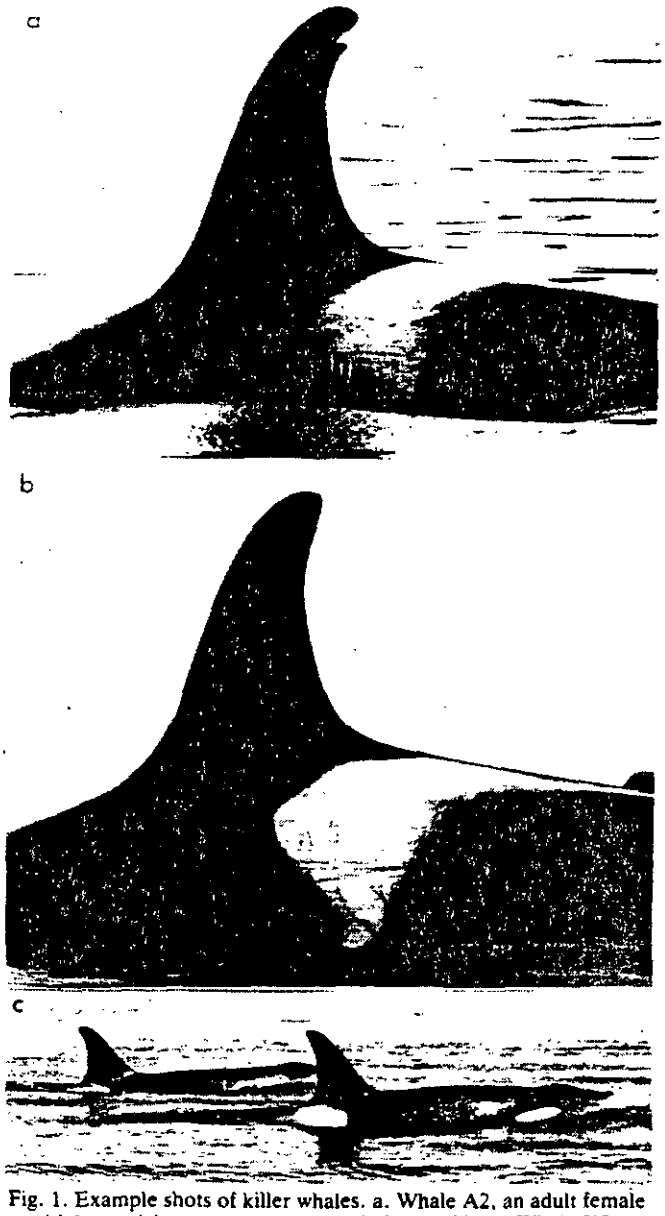


Fig. 1. Example shots of killer whales. a. Whale A2, an adult female with large nick at top, photographed 12 July 1986. b. Whale J12, an adult female with M-shaped scratches on saddle, photographed 21 April 1975. c. Not an ideal shot. Photos a. and b. by G. Ellis, Pacific Biological Station, Nanaimo, B.C., Canada. Photo c. by S. Mizroch.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
1335 East-West Highway
Silver Spring, MD 20910
THE DIRECTOR

Permit No. 797

Scientific Research Permit to Take Marine Mammals

The National Marine Mammal Laboratory, Northwest and Alaska Fisheries Center, National Marine Fisheries Service, 7600 Sand Point Way, N.E. BIN C15700, Seattle, Washington 98115, is hereby authorized to import marine mammal specimens, including material from species listed as threatened or endangered, for scientific research and scientific purposes as cited in the Permit Holder's application and subject to the provisions of the Marine Mammal Protection Act of 1972 (16 U.S.C. 1361-1407), the Regulations Governing the Taking and Importing of Marine Mammals (50 CFR Part 216), the Endangered Species Act of 1973 (16 U.S.C. 1531-1543), the regulations governing endangered species permits (50 CFR Parts 217-222), and the Conditions hereinafter set out.

Abstract:

The research involves the collection of tissue samples from dead cetaceans, pinnipeds and sea otters to: determine the biology and life history of each species; determine a basis for approval of permits to domestic fishermen; assess and/or conduct appropriate research to lessen the impact of such operations on marine mammal stocks; and assess the rate of incidental takes (mortalities) in gillnet fisheries through observer programs and to use tissue samples from animals collected in this fishery and retrieved opportunistically (i.e., beached stranded) for use in fishery-impact analysis models. Tissues will be analyzed for genotype and pollutant level variations to determine the existence of discrete porpoise stocks.

Authorization:

A. Number and Kind of Marine Mammals:

An unspecified number of specimen materials may be collected and imported from dead individuals of all cetacean species, all pinniped species, and sea otters which were:

1. directly taken in fisheries for such animals, in countries and situations where such taking is legal, except as provided in B.1.b.;
2. killed incidental to fishing or other operations;
3. found dead at sea or beached; and/or
4. found dead of natural causes.

B. Special Conditions:

1. Research Requirements

   a. The collection and importation of marine mammal specimens shall be conducted worldwide by the means and for the purposes described in the application, as amended, and as limited by the Terms and Conditions of this Permit.

c. The Holder shall submit a final report within 90 days of the expiration date of this Permit. The final report shall include a summary of the specimens that were collected and/or imported, their disposition, and the results of research conducted thereon.

d. All reports for cetacean and pinniped (except walrus) collections shall be submitted to: the Permits Division, Office of Protected Resources, National Marine Fisheries Service, NOAA, U.S. Department of Commerce, 1335 East-West Highway, Room 7324, Silver Spring, MD 20910; for sea otter and walrus collections: the U.S. Fish and Wildlife Service, Office of Management Authority, 4401 N. Fairfax Drive, Room 432, Arlington, VA 22203.

3. Notification Requirements

The Holder (or designated agent) shall notify the U.S. Fish and Wildlife Service, Marine Mammals Management Office, 4230 University Drive, Room 310, Anchorage, AK 99508, to coordinate the collection of biological samples from sea otters and/or walrus in Alaska.

C. General Conditions

All applicable General Conditions attached as Section C shall apply and are made a part hereof.

William W. Fox, Jr.

OCT - 1 1992
Date

I. Teiko Saito
Chief, Branch of Permits
Office of Management Authority

OCT - 1 1992
Date

2) Refrain from wearing potentially provocative clothing such as halter and tank tops, shorts, and tight clothing such as lycra.

3) Be aware that if you show more attention to one man than others, it may be misinterpreted by him or by others.

4) Do not invite a man to your cabin if you are alone, or accept an invitation to be alone with him, ("a friendly chat," "a little drink"). Leave the cabin door open or go to a public area if a man comes to talk to you without your invitation.

5) Activities such as flirting, joking about sex, or touching may be misinterpreted by the persons involved or by others. Unwanted approaches such as these should be responded to politely but very firmly. You yourself should avoid flirtatious behavior.

6) Do not engage in sexual affairs. Such affairs will distract you and your partner from doing your work, can breed resentment and jealousy and will subject other women to increased sexual pressure, both on your cruise and on subsequent cruises. Remember, you are at sea to work, not to amuse yourself. Remember, physical or emotional involvement with vessel or shoreside processing plant personnel is grounds for de-certification.

7) Make it clear that your interests in male companionship are elsewhere, (some women wear wedding rings), or that you are "not available."

8) If you are experiencing unwelcome advances or are in any tense situations, do not stand around on deck or other deserted areas alone at night.

9) In general, be very sensitive to the altered social conditions and their possible implications. Be very conservative. Use your common sense.

An assault often occurs with warning signs of milder behavior. If you act firmly and decisively during the early stages, you may reduce the chances of future harassment. Some warning signs to watch for are:

1) A man makes frequent attempts to detain you, to be in your company, or to visit you in your cabin.

2) Mild or casual sexual remarks become more frequent, pointed and/or objectionable.

3) A man attempts any physical contact, even if it appears innocent.

4) Other people warn you about a man who begins to harass you.

5) A man whom you have repeatedly attempted to discourage continues or escalates his advances.

Women's Resource Centers

Kodiak Women's Resource and Crisis Center

The center provides resources and crisis services to the community, as well as shelter for women and their children who are victims of domestic violence and sexual assault.

P.O. Box 2122
Kodiak, AK 99615
Business Phone: (907) 486 - 6171
Crisis Line Phone: 486 - 3625

South Peninsula Women's Services Inc.
P.O. Box 2328
Homer, AK 99613
Business Phone: (907) 235 - 7712
Hot Line: 235 - 8101

Dutch Harbor: Unalaskan's Against Sexual Assault and Family Violence
P.O. Box 36, Unalaska, AK 99685
24-Hour Crisis Line: 711
Office: (907) 581 - 1500
AK Toll Free: 1-800-478-7238

Women's Resource and Crisis Center
325 S. Spruce
Kenai, AK 99611
Business Phone: (907) 283 - 9479
Crisis Phone: 283 - 7257

Sitkans Against Family Violence
P.O. Box 6136
Sitka, AK 99835
Business Phone: (907) 747 - 6511
Crisis Phone: 747 - 3370

Women in Safe Homes
P.O. Box 6552
Ketchikan, AK 99901
24 hour phone (Business and **Crisis**) (907) 225 - 9474

Aiding Women in Abuse and Rape Emergencies (AWARE)
P.O. Box 020809
Juneau, AK 99802
Business Phone: (907) 586 - 1090
Crisis Phone: 586 - 6623

special designations (port traffic communications, U.S. government communications, locks and bridges, environmental, etc.), and their use close to shore or to ports should be minimized.

Channels 7, 8, 9, 10, 11, 18, 19, 67, 68, 69, 70, 71, 72, 78, 79, 80 and 88 are commercial and non-commercial working channels that are available for conducting business. The abbreviated format (no call signs) is acceptable on these frequencies. It should be noted that some of these channels may be locally restricted (off the Washington Coast, for example, channel 11 is Tofino Coast Guard Traffic Control for the entry into Juan deFuca Strait, used for reporting ship locations), in which case their use for business should be avoided.

HF-SSB Radios

To communicate over distances of beyond twenty miles, you will need to use satellite communication or a medium to high frequency radiotelephone referred to as Single Side Band (SSB) radio. The signal is poorer in quality than VHF and susceptible to slight atmospheric shifts. Lower frequencies are used for medium distances and higher frequencies for greater distances. The general rule for single sideband frequency selection is: multiply the frequency in MHz by 100 to obtain the approximate coverage distance in miles. At night however, the ranges of SSB radiowave travel are from 2-3 times greater. Therefore, use a lower frequency at night to cover the same distance.

All ship SSB radiotelephones must be capable of operating on 2182 kHz, the international distress and calling frequency, and at least 2 other frequencies. Numerous channels are available for your use; which ones are available varies from place to place. However, channel 2670 kHz is only used for communicating with the Coast Guard and should not be used for other purposes.

When using SSB radiotelephone, you must observe radio silence on channel 2182 kHz, the emergency channel, for 3 minutes immediately after the hour and the half hour. The purpose of radio silence on the emergency hailing channel is to clear the airwave for weak or distant distress signals. No radio silence is used on the VHF emergency channel: channel 16.

Radio Telephone Procedure - Continued

1. Radios are different from telephones in that they cannot transmit and receive simultaneously. Therefore when you have temporarily finished talking and are ready to listen, say "over," and release the button on your microphone. When the other party is ready to listen they will say "over." At the end of your entire message, say "out" rather than "over." Keep in mind that people on other ships can overhear your conversation, so watch what you say.

2. Sounds are easily garbled on marine radios so the phonetic alphabet is used when sailors want to spell something. Here are the words that the Coast Guard will recognize as letters:

A - alpha	N - November
B - bravo	O - Oscar
C - Charlie	P - papa
D - delta	Q - Quebec
E - echo	R - Romeo
F - foxtrot	S - Sierra
G - gulf	T - tango
H - hotel	U - uniform
I - India	V - victor
J - Juliet	W - whiskey
K - kilo (keeloes)	X - x-ray
L - Lima (Leema)	Y - Yankee
M - mike	Z - Zulu

3. Every ship and all Coast Guard stations continually listen to the emergency frequencies. Therefore when you want to talk to someone, call on an emergency frequency. As soon as you contact them, arrange to switch to another channel. It is illegal, impolite, unfair, and dangerous to talk on emergency channels. Sometimes atmospheric conditions are such that the emergency frequencies are the only ones that work. At those times you simply cannot communicate via radio except to report emergencies.

   Emergency frequencies are:

   FM Channel 16, international distress
   FM Channel 13, for ships to use to avoid collisions. You can contact other ships on 13, but not Coast Guard shore stations.
   AM 2182, international distress

   (Almost certainly as an observer you will only be using FM frequencies.)

4. When you initially contact another station make sure you state what channel you are broadcasting on, since all ships and stations constantly listen to several.

5. Speak in normal tones, using normal conversational pauses and emphasis.
6. Ensure that your messages are brief and businesslike. No chatter.

FIRST AID RESPONDER - LEGAL ASPECTS

What is our program's policy regarding an observer's role in giving first-aid to crewmen? Our recommendation is that observers should not get involved in any first aid or medical care unless they are the first responder and the situation is life threatening. Observers should not take any action which exceeds their certified first aid training, and information received during observer training does not qualify them for any first aid certification (!). Any first aid assistance given by an observer should only be given with the informed oral consent of the victim and if that's not possible, the Captain. In a true emergency in which there is a significant risk of death, disability, or deterioration of condition, the law assumes that the patient would give his consent. (The last statement and the following were taken from First Responder, A Skills Approach.[1])

If a patient or relative sues a First Responder for the way in which the patient was handled during treatment, the burden of proof is on the patient. The only time a first responder can be prosecuted is when he is guilty of gross negligence, recklessness, willful or wanton conduct, or intentional injury to the patient. Basically, the First Responder's duty legally can be defined as follows:

1. The First Responder should not interfere with the first aid help that is being given by others. [Note: Each vessel that operates with more than two individuals on board must have at least one individual certified in first aid and one or the same person certified in CPR. Each vessel that operates with more than 16 individuals on board has to have two persons certified in each and with more than 49 aboard, four persons have to be certified in first aid and CPR.]

2. The First Responder should follow the directions of (the Captain) and do what a reasonable, prudent person would do under the circumstances.

3. The First Responder should **NOT** force his help on a patient unless the situation is life threatening (such as severe bleeding, attempted suicide, poisoning, cardiac arrest, and so on). When the patient is unconscious, consent is automatic (by law). If the patient is not in a life-threatening situation and if he resists care, the First Responder can be charged with battery (physical contact of a person's body or clothing without consent) if care is forced on the patient without consent.

4. Once a First Responder has voluntarily started care, he should not leave the scene or stop the care until a qualified and responsible person relieves him; if he does, it constitutes abandonment.

5. The First Responder should follow accepted and recognized emergency care procedures.

First Responder A Skills Approach, 2nd Edition, by Keith J. Karren and Brent Q. Hafen, Department of Health Sciences, Brigham Young University. Morton Publishing Co., Englewood, Colorado. Copyright 1986, 382 pgs.

(5) Self-explanatory.

(6) The patient's name is very important, don't forget to include it.

(7 - 11) Age, sex, height and weight can be estimated when there is a lack of specific information.

(12 - 13) Build and allergies information is critical and must be exact!

(14) (Self-explanatory.)

(15) Type of injuries should be self-explanatory, however there are three things to be aware of: 1) the definition of a soft tissue injury; 2) trying to localize abdominal pain; and 3) the various types of bleeding. Soft tissue injuries are injuries related to the organs (i.e. eyes, kidneys, testes, etc.). Whenever possible, locate the abdominal pain using the navel as the center point. This will give the doctors and corpsmen a better idea of which organs are traumatized.

(16) Fill type of bleeding out carefully. Bleeding is not only an injury, but also an indicator of further problems and therefore must be observed in greater detail. Identify the type of bleeding as: profuse, shallow, pulsating, steady, and/or internal. Internal bleeding is difficult to identify but can be suspected, if an area such as the abdomen which is normally soft, is now hard and rigid; if that area or another is tender, swollen and/or has a bruised appearance to it. Look for the presence of blood in the eyes, ears, mouth, vomit and urine. Blood in the vomit needs specific identification as to its consistency and color (i.e. is the blood fluid-like in appearance or does it appear clumped together like coffee grounds, is it dark red or bright red?). All of these observations are necessary to determine the nature and origin of the bleeding.

(17 - 18) Self-explanatory, rely on basic observations.

(19 - 25) The vital signs are indicators of the patient's present physiology. To record the vital signs, all you need other than your good judgment is a watch with a second hand and a flashlight. Item (19), a patient's Level Of Consciousness (LOC) is generally described in terms of Alert, Vocal, Pain or Unconscious. Use the following standard criteria to determine a patient's LOC. The method used to determine Alertness is "Time, Date, Place Orientation." A person is considered Alert if they can answer simple questions, "What is your name, where are we, what is today's date?" **Do not ask** questions like, "How many fingers do I have up?"; number skills involve an entirely different set of motor functions in the brain. A person who is incoherent, semi-conscious, or mumbling without direction is considered Vocal. When a patient is unconscious but responsive to Pain (a thin pinch on the bottom of the foot or under the armpit should suffice) then this should be noted differently than the state of Unconscious, since it denotes a higher state of consciousness.

(20) Eyes: you will need a flashlight for this one. Open both of the victim's eyes, shine the light into one eye **from the side of the face** (not directly in from the front of the face), and look into the other eye. Both pupils should constrict equally, quickly, and simultaneously. If you have any doubts, have someone else repeat this procedure and compare your results.

(21) Pulse is counted at beats per 30 seconds times 2, and rated per minute. The pulse is best taken

TO: Coast Guard, Kodiak
FROM: your name, vessel name, vessel permit number, present lat. and long.,time & date

Request medical assistance/ Crewman Joe Misfortunate/ 30 yr./ male/ 145 lbs./ 5 FT. 7 IN./ medium build/ no allergies/ no medications///

Injured by a broken cable on Jan. 24 at 2300/ Patient has sustained a head injury/ Complains of severe pain in the upper left quadrant of abdomen/ Compound fracture to the right hand/ Possible fracture to the left arm below elbow/ Possible internal bleeding in the abdomen, area hare and tight, some blood in urine/ right hand and left arm splinted, external bleeding controlled///

VITAL SIGNS/ LOC, alert/ EYES, E-R/ PULSE 64 steady but weak/ B-P unavailable, DISTAL PULSE present, CAPILLARY REFILL good/ LUNGS clear and equal /RESPIRATIONS 30 and shallow/ SKIN: PERSPIRATION, normal; COLOR, normal; TEMPERATURE, normal/ BODY TEMPERATURE 102.2///

VESSEL OWNER/ Joe Smith/ Homer/ 907 123-4567///Please advise best course of action///

(22) BLOOD PRESSURE (B-P)

#'s ___this/that___ Distal Pulse Present Y/N____

B-P Cuff Only Capillary Refill Quality ____ Good ____ Poor

____ Fair ____ Unavailable

(23) LUNGS & RESPIRATIONS

Lung sounds are:

___ Clear ___ Equal

___ Congested ___ Unequal

___ Raspy

Respirations are:

___ XX per minute ___ Short

___ Deep ___ Irregular

___ Shallow ___ Strained

___ Weak

(24) SKIN (perspiration, color & temperature)

PERSPIRATION

___ Very Dry

___ Normal

___ Sweating

COLOR

___ Flushed

___ Normal

___ Pale/Ashened

___ Cyanotic (blue)

TEMPERATURE

___ Hot

___ Normal

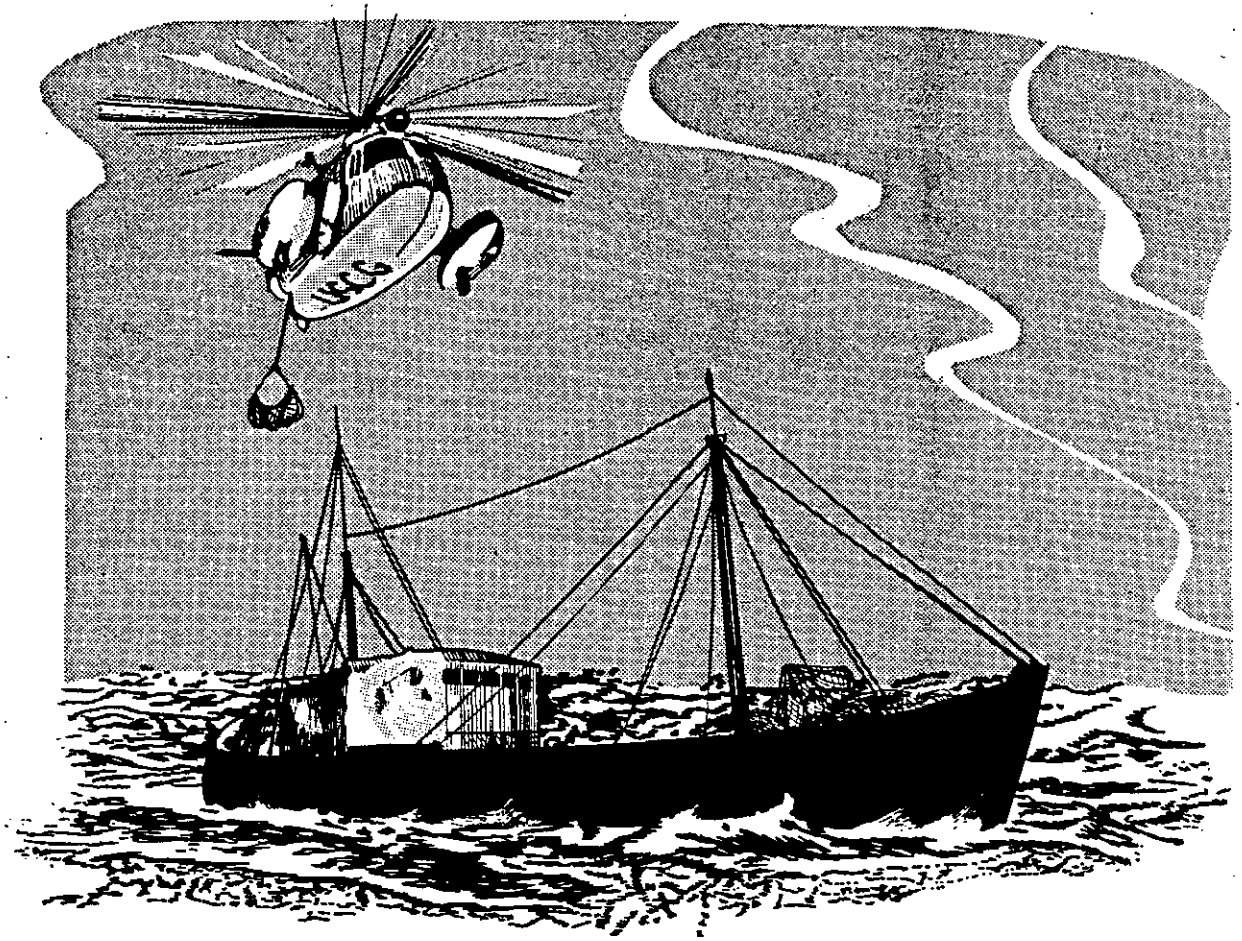
___ Cool/Cold

(25) BODY TEMPERATURE

____

°F = °C x 1.8 + 32

FLOW CHART							FLOW CHART	
TIME (GMT)	19 LOC	20 EYES	21 PULSE & qual	22 B/P	23 RESP (# & qual)	24 SKIN (p-c-t)	25 BODY TEMP	OTHER



HELICOPTER EVACUATION

Helicopter evacuation is a hazardous operation and should only be attempted in a life or death situation. The following information provides the capabilities and requirements of the Coast Guard for evacuation at sea.

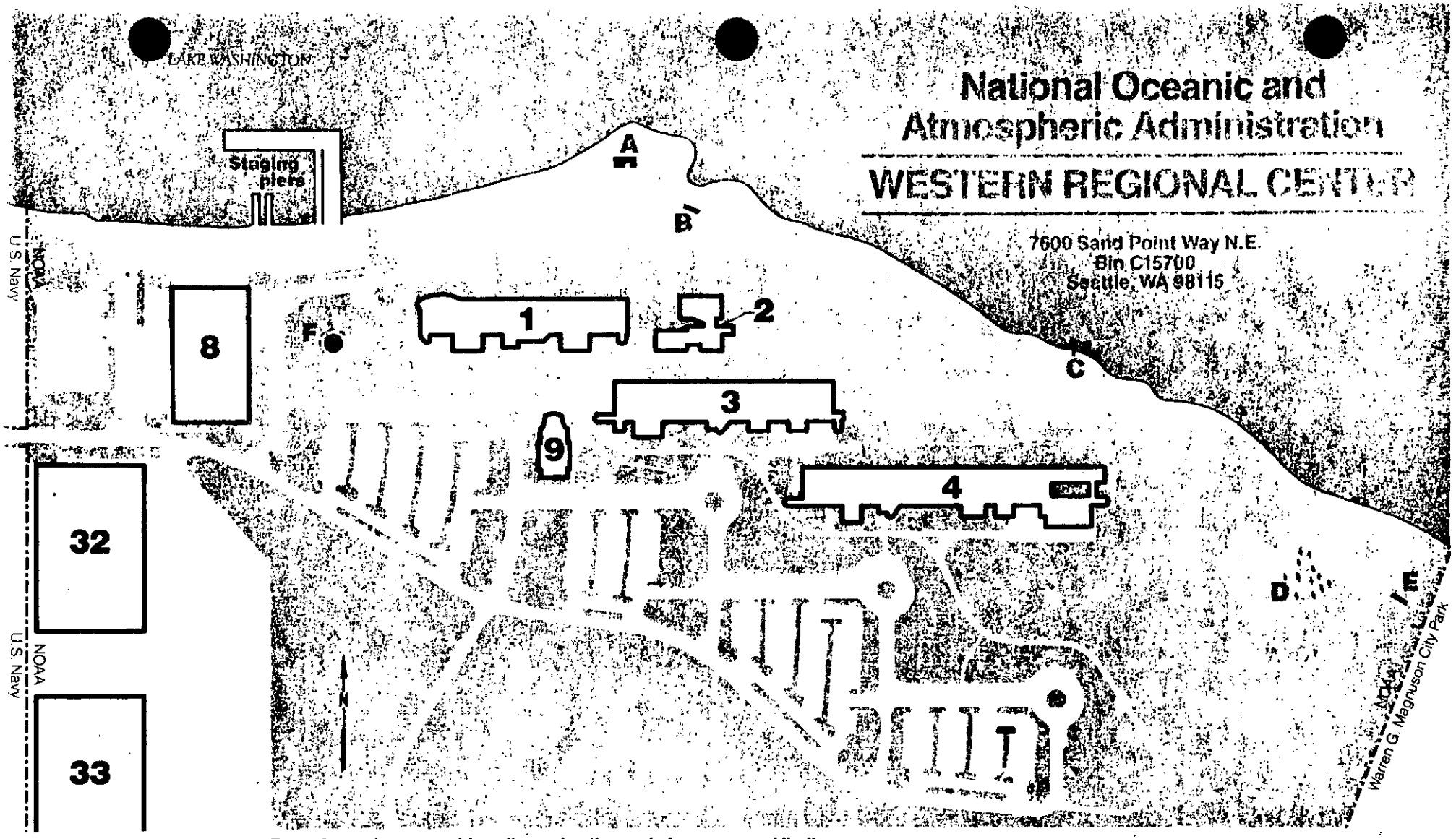
RANGE:
Helicopters can operate only 100 to 150 miles offshore weather conditions permitting.

REQUEST FOR ASSISTANCE:
▲ Determine patients condition and call the nearest Coast Guard station listed on NMFS Medical Assistance Placard.
▲ Give position, course, speed, weather conditions, type and characteristics of vessel.
▲ Conserve time by heading towards rendezvous point.

PREPARE FOR ARRIVAL:
▲ Stand by on 2182 kHz or specified alternate if not available.
▲ Display distress signal.
▲ Clear hoist area, preferably aft, with maximum horizontal clearance. If area is mid-ships lower antenna and secure running gear.
▲ At night, light area, DO NOT shine lights on helicopter.

HOISTING:
▲ Tag patient, indicate medication given and conditions doctor should be aware.
Keep vessel into wind or with wind about 20° on port bow at 10 to 15 knots.
▲ Hoist instructions will be given by pilot. Allow stretcher or basket to touch deck to discharge static electricity. Wear dry cotton or rubber gloves.
▲ If stretcher is needed it will be equipped with a hoisting bridle.
▲ Conditions permitting, have patient in life jacket, strapped in, face up, and hands clear of sides.
▲ DO NOT secure hoist cable to vessel or attempt to move stretcher without first unhooking cable.
▲ With patient strapped in signal pilot to lower hoist. Steady stretcher.
▲ Use trail line to steady stretcher. Make sure line is clear of rigging and crew.

U.S. Department of Commerce, National Oceanic and Atmospheric Administration
National Marine Fisheries Service, Fisheries Extention Service, Northeast Region, Gloucester, Massachusetts



National Oceanic and Atmospheric Administration

WESTERN REGIONAL CENTER

7600 Sand Point Way N.E.
Bin C15700
Seattle, WA 98115

For safety sake—use sidewalks and paths, and observe speed limits

Building 32
NMFS Resource Assessment and Conservation Engineering

Building 33
Warehouse

Building 8
Pacific Tide Party, PMC.
Western Regional Diving Facility.
Shops.
Warehouse.

Building 1
NW Regional Office, NMFS.
NW Regional Counsel.
NW Ocean Service Center.
Public Affairs.
Office for Civil Rights.
National Weather Service Forecast Office.
Western Administrative Support Center.

Building 2
Cafeteria.
Health care facility.

Building 3
Pacific Marine Environmental Laboratory.
Nautical Chart Branch, PMC.
Library & Information Services Division.
Ocean Assessments Division, NOS.

Building 4
Northwest & Alaska Fisheries Center, NMFS

Building 9
Auditorium and seminar rooms

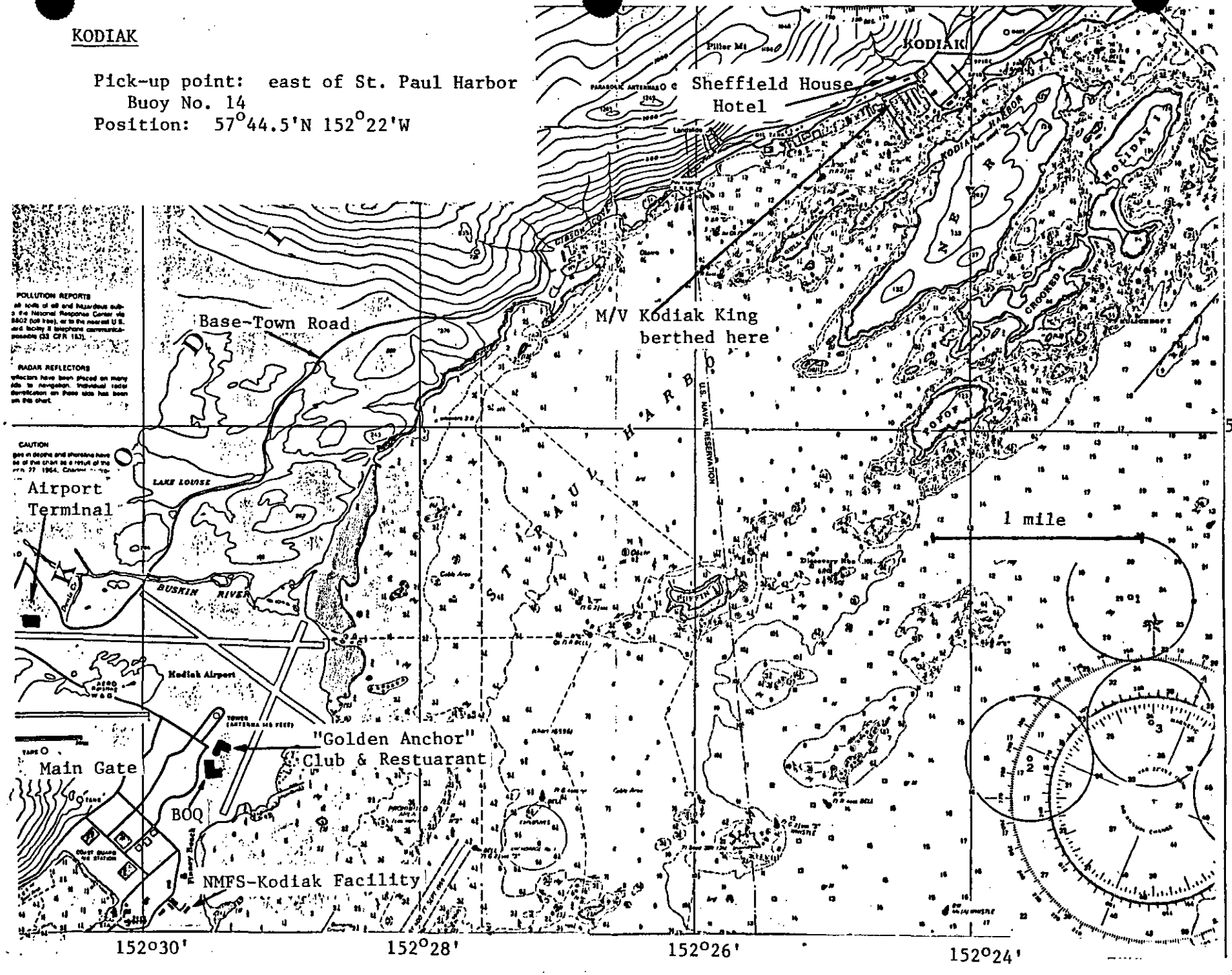
Artworks

- **A** Viewpoint
- **B** NOAA Bridge
- **C** Berth Haven
- **D** A Sound Garden
- **E** NOAA Bridge
- **F** Knoll for NOAA

U.S. GOVERNMENT PRINTING OFFICE: 1984 795-254

KODIAK

Pick-up point: east of St. Paul Harbor
Buoy No. 14
Position: 57°44.5'N 152°22'W



GLOSSARY

ABC - Acceptable Biological Catch is an annual harvest level for each species based only on biological considerations.

Aft - towards the stern of a vessel

Amidships - midway between the bow and stern of a ship, or on the centerline.

Athwart ships - side-to-side across a ship, perpendicular to the centerline.

Bag - the codend.

Beam - width of a ship.

Benthic - living in direct relation with the bottom

Bight - a loop or turn in a line.

Bin - a large compartment built into a ship for holding fish. Also called live tank, refrigerated seawater tank (RSW tank), lobby.

Block - a pulley or system of pulleys in a frame, with a hook.

Boat Share - The percentage of the gross which goes to the vessel owner.

Bobbin - a round, rubber or steel roller used in the footrope of a bottom net to protect the net from damage

Bosun - chief of the deck crew

Bottom - 1) ocean floor, or 2) fishing depth, or 3) a ship hull. Which meaning to apply must be taken from context.

Bow - the forward end of a ship.

Bow line - a mooring line attached to the bow of a ship.

Bowline - a type of knot used to form an eye in the end of a rope.

Breech - a behavioral characteristic of some marine mammals such as humpback whales, where they rise vertically out of the water, and then with most of their body above the surface, they fall to their back or side.

Bridge - the control center of a ship.

Bridle - Wire attached to the headrope, footrope or side panel of a net, by which the net is towed.

Bulkhead - a wall separating compartments of a ship.

Bulwarks - the upper section of the side plating of a ship, which extends above and around the upper deck.

Capstan (gypsy) - an upright, spool-shaped, power rotational cylinder around which cables or hawsers are wound for hoisting anchors, or other weights.

Chaffing gear - protective carpeting (or strands of nylon forming a carpet pile) on the outer, underside of the trawl net to keep it from catching and ripping on obstacles on the bottom.

Chief - The engineer, the man responsible for care of engines and deck machinery.

Choker, choke strap - a loop of wire or rope used to cinch off the net or codend.

Cleat - a heavy piece of wood or metal having two horns around which ropes may be made fast or belayed, usually secured to a fixed object such a dock or the deck.

Codend - the end "bag" of a trawl net where the majority of the fish are collected and held.

Combing - a low partition that separates the trawl deck from the side pockets.

Companionway - Entrance/stairway from deck to fo'c'sle and engine room.

Compliance - in accordance with the fishing regulations.

Cookie (disc) - a flat, round piece of rubber with a hole in the center strung on a wire rope or chain to protect it from abrasion and to stir up a mud cloud.

Gas bladder - a sac filled with air or similar gases in the body cavity. May or may not be attached to the throat by a duct.

G-hook - a piece of cut or cast iron hardware in the shape of a "G", used with a flatlink where wires must be connected and disconnected frequently.

Gill rakers - bony tooth like structures on the anterior edges of the gill arches. For protection or straining out food.

Gilson - a single hookline (as distinguished from a multiple block) used to assist in setting, hauling and moving gear on deck.

Gunnel or Gunwale - the upper edge of the side of a boat.

Gurdy - Special winch for hauling of longlines or trolling lines.

Gypsyhead - A metal drum with a smooth concave surface, usually mounted on a winch. Several wraps of line around the gypsy provide enough friction while it is turning to raise heavy loads smoothly because the line slips and is easily controlled, like the friction on a clutch plate.

Hatch - an opening in a deck or bulkhead of a ship.

Haul - a catch of fish from one tow of a net

Hawser - any large rope (generally five inches or more in circumference) used primarily for towing, mooring or hauling.

I-beam - a steel beam shaped like an "I" in cross section.

Incidental catch or species - catch taken while fishing for the primary purpose of catching a different species.

Intermediate - a gradually tapered section, generally of small mesh, between the back body of a trawl and the codend.

Joint Venture - a cooperative fishing/processing effort between vessels of different nationalities.

Knot - A measure of time multiplied by distance, equaling speed. One knot equals one nautical mile (6080 feet) in one hour.

Lay - the direction in which the strands of a rope are twisted (right or left) or the degree of tightness with which they are twisted (soft, medium, hard, etc.)

Lazaret - a storage place between the decks of a ship.

Lee, Leeward - the side protected from the wind, opposite the "windward" side

Lobby - another name for a fish bin on a catcher/processor.

Master - fishing master and/or captain.

Mothership - a processing vessel at-sea (under way) whose fish come from catcher boat's deliveries.

MSY - Maximum Sustainable Yield is an estimate of the largest average annual catch or yield that can be taken over a significant period of time from each stock under prevailing ecological and environmental conditions. Since MSY is a long term average, it need not be specified annually.

Net reel - a hydraulic drum on the deck on which the net and most of the rigging are wound.

Otterboard - Another name for a trawl door; Refer to net diagram.

Otter trawl - The type of net gear used on stern trawlers; Refer to net diagram.

OY - a range within which summed TAC's must fall.

Pelagic - midwater

Peritoneum - the lining of the gut cavity

Pew, Pew stick, Pewing - a sharp-ended pole which is used to skewer fish and toss them to another location.

Pod - a group of marine mammals traveling in association

under way if it is not at anchor or at dock, so a vessel adrift is technically under way.

Vessel Code - A code used only by the observer program to identify a ship.

Warp (main wire) - the cables on a trawler which run from the main winches to the trawl doors on the net.

Wing - the sides off a trawl net near the opening, usually with larger mesh than the rest off the net.

Wrister - A coated cloth tube worn on the arm, extending from the elbow and covering the wrists. Keeps arms warm. Fish blood and slime are more easily washed out from these than from shirt sleeves. Most fishermen cut off work shirt sleeves, generally about halfway between elbow and wrist.

Zipper - an area of the codend which may be opened to remove fish, a seam connecting two parts of the net which may be opened by pulling on the zipper line.

Zulu - another name for GMT.

FORM A - Plant Delivery Form

PAGE ______ OF ______

Cruise #	Plant code	Year

Catcherboat Name	ADF&G #	CG #	Permit #

Delivery sampled ?	Observer onboard ?	Delivery date		Delivery Number	Gear type	NMFS area number	No. of tows	Average duration (minutes)	Total wt. delivered (round wt.)	LB or MT	ADF&G # of catcherboat	ADF&G fish ticket number
		Month	Day									

Created 1/1/97

FORM A - Delivery Composition Form

PAGE ______ OF ______

Cruise #	Plant code	Year

Delivery Date		Delivery number	Species code	Main product code	Possible length/sex bias?	Weight of target species discarded at sea	Round weight of target species delivered	LB or MT
Month	Day							

Created 1/1/97

PLANT COVERAGE SHEET

End of Contract Summary:

Observer Name_____ Contractor_____

Cruise #_____

Proc. Plant Codes	1st Day Coverage	Last Day Coverage	Total Coverage Days at Plant

WEEKLY PLANT REPORT

Each week, please record a new line of entry for each plant you worked at that week. Record the plant name and location, whether it is a 100% or 30% plant (if known) and the week ending date. Then, list the dates of coverage within that week, and from this the total number of days of coverage for that week for each plant. For plants, a coverage day is defined as any day on which a plant *receives or processes groundfish and the observer is present.* For each day you provide coverage some work should be performed; i.e. collecting Form A information, helping a vessel observer, doing length measurements, age structure collection, or density sampling.

Plant Name & Location	100% or 30% Plant	Week End Date	List Each Date of Coverage for the Week	Total Days of Cov-erage in Week

FORM 1US - CATCH SUMMARY FOR LONGLINE AND POT VESSELS

Observer Name _____

Vessel Name _____

Page _____ of _____ for transmission

Page _____ of _____ for vessel

Cruise number	Vessel code	Year

Plant/Processor name	Location	Processing code #

ORC

Sets sampled for composition	Date: Month	Date: Day	Set #	%Monitored for marine mammals	Gear type	Gear performance	Vessel type	Location code	End position of set: Latitude (N)	End position of set: E or W	End position of set: Longitude (100)	Soak time: hrs	Soak time: min	Avg. bottom depth	M or F	# of skates or # of pots in set	Skate length or pot set length	# of hooks or pots per skate	Total hooks in the set	Official Total Catch in metric tons	Observer's Total Catch Estimate in metric tons	Vessel's Total Catch Estimate in metric tons	Processor code	CDQ/IFQ number

Revised 1/1/97

FORM 3US--SPECIES COMPOSITION FOR LONGLINE AND POTS

Worksheet

Species:						
Wt. of above:						
No. weighed:						
Avg. weight:						

Other calc.& comments:______________________________

Cruise	Vessel Code	Year	Month	Day	Haul

ST = Sampling Type
L = Longline
T = Trap/pot

Species name	Sex	Species code	ST	Number	Species weight in kg. w/ decimal	No. of hooks or pots sampled	% Retained
(keypunch check)		999				X	

Revised 1/1/97

List of catcher boats for motherships

Cruise number	Vessel code	Year	Full name of catcher boat	ADF&G #

FORM 2US - HAUL FORM FOR U.S. TRAWLERS

Observer name ______________________________

Vessel name ______________________________

Page _________ of _________ for transmission

Page _________ of _________ for vessel

Plant/Processor name	Location	Processor code #

ORC

Hauls sampled for composition	Date: Month	Date: Day	Haul #	Monitored for MM?(Y/N)	Gear type	Gear performance	Vessel type	Location code	Haul or Delivery position: Latitude (N)	E or W	Longitude (100)	Fishing times in ALT: Nets on bottom	Nets off bottom	Fishing duration (minutes)	Average fishing depth	Average bottom depth	M or F	Avg. speed (knots)	Official Total Catch in metric tons	Observer's Total Catch Estimate in metric tons	B or C	Density used in mt. per cubic meter	Vessel's Total Catch Estimate in metric tons	Catcher boat's ADF&G #	Processor code	CDQ/IFQ number
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FORM 3US–SPECIES COMPOSITION FOR TRAWLERS

Worksheet

Species:						
Wt. of above:						
No. weighed:						
Avg. weight:						

Other calc.& comments: ____________________

Cruise	Vessel Code	Year	Month	Day	Haul

ST = Sampling Type
B = basket
P = partial haul
W = whole haul

Species name	Sex	Species code	ST	Number	Species weight in kg. w/ decimal	Sample weight in kg. w/ decimal	% Retained
(keypunch check)	X	999	X			X	

Cruise	Vessel Code	Year	Month	Day

FORM 7US-LENGTH FREQUENCY OF MEASURED SPECIES
(includes halibut, salmon, and crab measurments)

Page_____ of _____

SIZE GROUPS: Fish by 1cm. Crabs by 5mm

M = male
F = female
U = unknown sex

Species name	Species code	Set/haul no.	Sex	Eggs?	Keypunch check	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.	Size groups	Freq.

AREA _____ **FORM 9US - BIOLOGICAL SAMPLING FORM** Page ____ of ____

Cruise no.	Vessel code	Date			Species name	Species code	Specimen type	Sampling system
		Year	Mo.	Day				
1 2 3 4 5	6 7 8 9	10 11	12 13	14 15		16 -18	20 -21	22 - 23

Total no. of specimens _____

Catalogue date _____

	Set/haul number			Specimen number			Sex	Length (cm)			Weight (kg)					Form 7	Maturity stage		Notes		Age			REMARKS
	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	41	42	43	44	45	47	48	49	
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Cruise #	Vessel code	Year

Form 10AUS - Marine Mammal Interaction Data

Describe features used in identification; circumstance and effects of deterrents; particulars of entrapment or entanglement; types and extent of injuries; etc.

Date Month	Date Day	Haul, or set number	Species Name	Species code	Number of individuals	Did you observe mammal?	Condition code	Interaction code

Remarks: (see manual for list of required information)

Date Month	Date Day	Haul, or set number	Species Name	Species code	Number of individuals	Did you observe mammal?	Condition code	Interaction code

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Date Month	Date Day	Haul, or set number	Species Name	Species code	Number of individuals	Did you observe mammal?	Condition code	Interaction code

Remarks: (see manual for list of required information)

Form 11US

MARINE MAMMAL SIGHTING

NOAA/NMFS/AFSC/NMML
Platforms of Opportunity
7600 Sand Point Way NE
Seattle, WA 98115

Observer(s)_____ Vessel_____

date (Y Y M M D D) local time (24 hr. clock) (:) +/- GMT (+/-)

latitude ° ' N/S (N)

general location (optional)

longitude (1) ° ' E/W

sighting conditions Beaufort +/- water temp. (+/-) °C
xlnt good fair poor

species (common and/or scientific name)

confidence
sure likely unsure

sighting cue

closest approach (meters) number sighted (best) number (minimum) number (maximum)

observer

vessel

platform vis. species code sighting cue

conf. length photos

behaviors

interactions multi

(circle as appropriate)

Narrative

Make identifications only on specific features seen. Mention them here. Include body features, markings and coloration, associated organisms, elaborate on behaviors, etc. The most valuable sightings contain a good amount of detailed information.

Body Length Estimate

- ☐ < 3 m (< 10')
- ☐ 3–8 m (10–25')
- ☐ 8–16 m (25–50')
- ☐ 16–26 m (50–80')
- ☐ >26 m (>80')

Behaviors Seen

bowriding (small cetaceans)
stern/wake riding
galloping ("porpoising")
jumping
slow rolling
roostertailing
milling

spyhopping (large cetaceans)
blow visible
breaching
pec (flipper) slapping
lobtailing
tail raised on dive
tail throws
lateral lunge feeding
vertical lunging
group lunging
flukes up on dive

rafting (pinnipeds)
resting (jughandle)
running ("porpoising")
inverted slaps
leaving haulout
vocalizing

Fishing Interactions

feeding on discards
feeding from gear
swimming near gear
contact with vessel
contact with gear
trailing gear

Sketches

When possible, make a sketch noting pigmentation, anatomical features, scarring, posture, anatomical anomalies, group positioning, etc.

Photos/Video (optional)

- ☐ photographs
- ☐ video

roll/tape # _____

frame(s) _____

☐ Check here if there was more than one species of marine mammal present at this sighting. Please fill out a form for each species.

cruise number and vessel code

CMA - SPECIES COMPOSITION

Cruise # ____________ Vessel code ____________ Vessel Name ________________________________ Page ________ of _________ for vessel

Weekly Message or Resubmission of Message

Observer Name ______________________________ Page __________ of __________ for transmission Fax /Telex # ______________________

GROUP ABBREVIATIONS																
SPECIES GROUP CODES																
HAUL NUMBER	TOTAL SAMPLE WEIGHT IN KG	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE	KG in SAMPLE
	% of group retained															
	% of group retained															
	% of group retained															
	% of group retained															
	% of group retained															
	% of group retained															
	% of group retained															
	% of group retained															

Revised 1/1/97

Cruise # _____ Vessel code _____ Vessel Name _____

CMB - PROHIBITED SPECIES

Page _____ of _____ for vessel

Observer Name _____ Page _____ of _____ for transmission

Weekly Message or Resubmission of Message

HAUL NUMBER	SAMPLE WEIGHT IN MT	RED KING CRAB		OTHER KING CRAB		SAMPLE WEIGHT IN MT	HERRING	SAMPLE WEIGHT IN MT	BAIRDI TANNER		OTHER TANNER		SAMPLE WEIGHT IN MT	PACIFIC HALIBUT		SAMPLE WEIGHT IN MT	CHINOOK SALMON		OTHER SALMON		Marine Mammals	
		NUMBER	WEIGHT KG	NUMBER	WEIGHT KG		WEIGHT KG		NUMBER	WEIGHT KG	NUMBER	WEIGHT KG		NUMBER	WEIGHT KG		NUMBER	WEIGHT KG	NUMBER	WEIGHT KG	codo	#

revised 1/1/97

Inseason Halibut Viability Form

Page _____ of _____ for the transmission

Observer Name_____

Vessel Name_____

Fax to:
Domestic Observer Program
(206) 526-4066 or
(206) 526-4207

Office Use Only: Cruise # Permit # Proc. Code

BSA or GOA	Week Ending Date	Number of Halibut Excellent	Number of Halibut Poor	Number of Halibut Dead	Total Halibut Examined	If IFQ, Were Halibut Retained? Y or N (Non IFQ, Leave Blank)

Revised 11/30/95

Page _____ of _____

INSEASON SALMON RETENTION FORM FOR CATCHER/PROCESSORS AND MOTHERSHIPS

Observer Name_____

Vessel Name_____

Cruise #_____ Vessel code _____

Vessel ADF&G Number	Date	Haul or Delivery Number	Gear Code	Haul Wt. in mt.	Haul Position			Temperature			Wind Measurement			Salmon Totals			Reliability Code
					Latitude	E or W	Longitude (1)	Degree °F or °C	Surface temp.	Fishing temp.	Data? Y or N	Wind Direction	Wind Speed	Number of Chinook	Number of Other Salmon	Number of Unident Salmon	

revised 8/28/95

INSEASON SALMON RETENTION FORM FOR PLANTS AND FLOATERS

Page _____ of _____

Observer Name_____

Plant Name_____

Cruise # _____ Vessel code _____

Data From All Deliveries									Data From Deliveries Sampled by C/V Observer					
Vessel ADF&G Number	Delivery Date	Delivery Number	Delivery Weight in mt.	Number of Chinook in delivery	Number of Other Salmon in delivery	Number of unident Salmon in delivery	Observer onboard the C/V?	Sampled by C/V observer?	Tonnage sampled for salmon in mt.	First 2US haul # of delivery	Last 2US haul # of delivery	Number of Chinook in sample	Number of Other Salmon in sample	Number of unident Salmon in sample

revised 8/23/95

(1) OBSERVER NAME _____

(2) VESSEL NAME _____

(3) TARGET SPECIES _____

(4) DATE SENT _____

(5) CDQ NUMBER _____

CMD - DAILY CATCH MESSAGE FORM
for FAX communication

RKNG - Red King Crab
OKNG - Other King Crab
HERR - Herring
BTAN - Bairdi Tanner Crab
OTAN - Other Tanner Crab
HBT - Pacific Halibut
CSAL - Chinook Salmon
OSAL - Other Salmon

To: Alaska Regional Office
Inseason Management Branch
Juneau, AK

Via FAX: (907) 586-7131
Via TELEX: 62296000
Via Operator: (907) 586-7228

Vessel's FAX/TELEX _____

(6) Date		(7)	(8)	(9)	(10)	(11)	For requested prohibited species			(15)	For requested species group	
							(12)	(13)	(14)		(16)	(17)
Month	Day	NMFS Area	By area, total daily weight in metric tons	Sampling method	Total of haul weights per sampling method	Species Report Group Code	Total of prohibited species sample weights in metric tons	Total number of prohibited species in samples	Total weight of prohibited species in kilograms	Species Report Group Code	Total of species composition sample weights in kilograms	Total weight of species group in samples in kilograms

revised 3/93

CM V - Weekly Catch Message Form for Voice Communication

Page _____ of _____ for vessel

Observer Name

NMFS Region

ORC_____
(not coded)

Vessel Name

Gear Type

Week Ending Date

Observer Coverage Days

Check one of the following boxes or fill in name of shoreside plant or floating processor:

Aboard a catcher/processor? ☐

Aboard a mothership? ☐

Catcher boat? Delivering to: _____

1. Summarize data for the week for the target species and for halibut by region and gear type.
2. Transfer totals to the shaded boxes on CM-V.
3. Translate all information in the shaded boxes using codes and enter in adajcent white boxes.
4. Transmit all information in the white boxes via marine operator and radio.

Office Use Only Cruise # Permit # Proc. Code

(1) Total catch for the week in mt	(2) Total of species composition samples in kg	(3) Target Report Group Code	(4) Total weight of target species in samples in kg	(5) Total halibut sample weight in kg	(6) Total number of halibut in samples	(7) Total weight of halibut in samples in kg

0	1	2	3	4	5	6	7	8	9

revised 11/92

OBSERVATIONS OF MARINE DEBRIS

For recording both the disposal and the catch and disposal of marine debris.

Page ____ of ____

Cruise No.	Vessel code	Year
1 - 5	6 - 9	10 - 11

Sighting code
1 = Debris found in sampled portion of haul
2 = Debris found in portion of haul not sampled
3 = Lost or discarded debris

Size code
A = ≤ 1 quart
B = 1 qt. - 5 gallons
C = 5 - 15 gallons
D = 15 - 30 gallons
E = > 30 gallons
F = codend
G = unknown

Disposal code
B = Burned
S = Stored
D = Discarded
L = Lost
U = Unknown
O = Other
N = Not applicable

Sight Code	Date		Sea State	Haul	Sample Size (mt)	Start Position			End Position			Debris Code	Size Code	Number	Disposal Code
	Mo	Day				(N) latitude	E/W	(1) longitude	(N) latitude	E/W	(1) longitude				
12	13-14	15-16	17	18-20	21 - 25	26 - 29	30	31 - 34	35 - 38	39	40 - 43	44 - 46	47	48 - 49	50

MARINE DEBRIS SIGHTING SURVEY

Page ___ of ___

Cruise No.	Vessel code	Year
1 - 5	6 - 9	10 - 11

Date		Sea State	Vis	Start Position			End Position			Start Time	End Time	Speed (knots)	Sighting Position			Sight Time	Object	Est Dis (m)
Mo	Day			(N) lat	E/W	(1) lon	(N) lat	E/W	(1) lon				(N) lat	E/W	(1) lon			
12	15	16 - 17	18	19-22	23	24-27	28-31	32	33-36	37-40	41-44	45-47	48-51	52	53-56	57-61	62-64	65-68
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